CONTAINS NO CBI

EPA

Form Approved
OMB No. 2010-0019
Approval Expires 12-31-89

EPA-OTS

0006577819

90-890000243

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Comprehensive Assessment Information Rule

REPORTING FORM

99 JUN 23 AM 8:36
OTS DOCUMENT CONTROL OFFICE

When completed, send this form to:	For Agency Use Only:
Document Processing Center Office of Toxic Substances, TS-790 U.S. Environmental Protection Agency 401 M Street, SW Washington, DC 20460 Attention: CAIR Reporting Office	Date of Receipt: _____ Document Control Number: _____ Docket Number: _____

EPA Form 7710-52

SECTION 1 GENERAL MANUFACTURER, IMPORTER, AND PROCESSOR INFORMATION

PART A GENERAL REPORTING INFORMATION

1.01 This Comprehensive Assessment Information Rule (CAIR) Reporting Form has been completed in response to the Federal Register Notice of..... [1][2] [2][2] [8][8]
mo. day year

CBI

[ ] a. If a Chemical Abstracts Service Number (CAS No.) is provided in the Federal Register, list the CAS No. ..... [0][2][6][4][7][1]-[6][2]-[5]

b. If a chemical substance CAS No. is not provided in the Federal Register, list either (i) the chemical name, (ii) the mixture name, or (iii) the trade name of the chemical substance as provided in the Federal Register.

(i) Chemical name as listed in the rule ..... N/A

(ii) Name of mixture as listed in the rule .... N/A

(iii) Trade name as listed in the rule ..... N/A

c. If a chemical category is provided in the Federal Register, report the name of the category as listed in the rule, the chemical substance CAS No. you are reporting on which falls under the listed category, and the chemical name of the substance you are reporting on which falls under the listed category.

Name of category as listed in the rule ..... N/A

CAS No. of chemical substance ..... [N/A][ ][ ][ ][ ]-[ ][ ]-[ ]

Name of chemical substance ..... N/A

1.02 Identify your reporting status under CAIR by circling the appropriate response(s).

CBI

Manufacturer 1

[ ] Importer 2

Processor ..... (3)

X/P manufacturer reporting for customer who is a processor 4

X/P processor reporting for customer who is a processor 5

[ ] Mark (X) this box if you attach a continuation sheet.

1.03 Does the substance you are reporting on have an "x/p" designation associated with it in the above-listed Federal Register Notice?

CBI

[ ]

Yes ..... [X] Go to question 1.04

No ..... [ ] Go to question 1.05

1.04 a. Do you manufacture, import, or process the listed substance and distribute it under a trade name(s) different than that listed in the Federal Register Notice? Circle the appropriate response.

CBI

[ ]

Yes 1

No ..... (2)

b. Check the appropriate box below:

[NA] You have chosen to notify your customers of their reporting obligations

Provide the trade name(s) .... N/A

N/A

[NA] You have chosen to report for your customers

[NA] You have submitted the trade name(s) to EPA one day after the effective date of the rule in the Federal Register Notice under which you are reporting.

1.05 If you buy a trade name product and are reporting because you were notified of your reporting requirements by your trade name supplier, provide that trade name.

CBI

[ ]

Trade name ..... N/A

Is the trade name product a mixture? Circle the appropriate response.

Yes ..N/A..... 1

No ...N/A..... 2

1.06 Certification -- The person who is responsible for the completion of this form must sign the certification statement below:

CBI

[ ]

"I hereby certify that, to the best of my knowledge and belief, all information entered on this form is complete and accurate."

Gerald K. Spring	Gerald K Spring	May 16, 1989
NAME	SIGNATURE	DATE SIGNED

Laboratory Administrator	(419) 289-2727
TITLE	TELEPHONE NO.

[ ] Mark (X) this box if you attach a continuation sheet.

1.07 Exemptions From Reporting -- If you have provided EPA or another Federal agency with the required information on a CAIR Reporting Form for the listed substance within the past 3 years, and this information is current, accurate, and complete for the time period specified in the rule, then sign the certification below. You are required to complete section 1 of this CAIR form and provide any information now required but not previously submitted. Provide a copy of any previous submissions along with your Section 1 submission.

CBI
[ ]

"I hereby certify that, to the best of my knowledge and belief, all required information which I have not included in this CAIR Reporting Form has been submitted to EPA within the past 3 years and is current, accurate, and complete for the time period specified in the rule."

N/A	N/A	N/A
NAME	SIGNATURE	DATE SIGNED
N/A	(N/A) -	N/A
TITLE	TELEPHONE NO.	DATE OF PREVIOUS SUBMISSION

1.08 CBI Certification -- If you have asserted any CBI claims in this report you must certify that the following statements truthfully and accurately apply to all of those confidentiality claims which you have asserted.

CBI
[ ]

"My company has taken measures to protect the confidentiality of the information, and it will continue to take these measures; the information is not, and has not been, reasonably ascertainable by other persons (other than government bodies) by using legitimate means (other than discovery based on a showing of special need in a judicial or quasi-judicial proceeding) without my company's consent; the information is not publicly available elsewhere; and disclosure of the information would cause substantial harm to my company's competitive position."

N/A	N/A	N/A
NAME	SIGNATURE	DATE SIGNED
N/A	(N/A) -	
TITLE	TELEPHONE NO.	

[ ] Mark (X) this box if you attach a continuation sheet.

PART B CORPORATE DATA

1.09 Facility Identification

CBI Name [G][E][N][E][R][A][L][ ][L][A][T][E][X][ ][&][ ][C][H][E][M.][ ][C][O][R][P.][ ]

[ ] Address [1][1][2][6][6][ ][J][E][R][S][E][Y][ ][B][L][V][D.][ ][ ][ ][ ][ ][ ][ ]
Street

[R][A][N][C][H][O][ ][C][U][C][A][M][O][N][G][A][ ][ ][ ][ ][ ][ ][ ][ ]
City

[C][A] [9][1][7][3][0]--[5][1][1][4]
State Zip

Dun & Bradstreet Number .....[0][7]-[0][9][4]-[0][8][4][6]

EPA ID Number .....CAD.[0][7][0][9][4][0][8][4][6]

Employer ID Number .....[4][1][3][6][0][6][7][5]

Primary Standard Industrial Classification (SIC) Code .....[3][0][6][9]

Other SIC Code .....[3][0][7][9]

Other SIC Code .....[9][9][9][8]

1.10 Company Headquarters Identification

CBI Name [G][E][N][E][R][A][L][ ][L][A][T][E][X][ ][&][C][H][E][M.][ ][C][O][R][P.][ ]

[ ] Address [6][7][5][ ][M][A][S][S][A][C][H][U][S][E][T][T][S][ ][A][V][E.][ ][ ][ ][ ]
Street

[C][A][M][B][R][I][D][G][E][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]
City

[M][A] [0][2][1][3][9]--[3][3][9][0]
State Zip

Dun & Bradstreet Number .....[0][0]-[1][0][0]-[8][2][8][3]

Employer ID Number .....[4][1][3][6][0][6][7][5]

[ ] Mark (X) this box if you attach a continuation sheet.

1.11 Parent Company Identification

CBI Name [G][E][N][E][R][A][L] [L][A][T][E][X] &[C][H][E][M] [C][O][R][P]

[ ] Address [6][7][5] [M][A][S][S][A][C][H][U][S][E][T][T][S] [A][V][E]
Street

[C][A][M][B][R][I][D][G][E]
City

[M][A] [0][2][1][3][9]--[3][3][9][0]
State Zip

Dun & Bradstreet Number .....[0][0]-[1][0][0]-[8][2][8][3]

1.12 Technical Contact

CBI Name [G][E][R][A][L][D] [S][P][R][I][N][G]

[ ] Title [L][A][B][O][R][A][T][O][R][Y] [A][D][M][I][N][I][S][T][R][A][T][O][R]

Address [1][5][2][6] [C][L][E][V][E][L][A][N][D] [A][V][E]
Street

[A][S][H][L][A][N][D]
City

[O][H] [4][4][8][0][5]--[0][4][9][8]
State Zip

Telephone Number .....[4][1][9]-[2][8][9]-[2][7][2][7]

1.13 This reporting year is from ..... [0][5] [8][7] to [0][4] [8][8]
Mo. Year Mo. Year

[ ] Mark (X) this box if you attach a continuation sheet.

1.14 Facility Acquired -- If you purchased this facility during the reporting year, provide the following information about the seller:

CBI Name of Seller [NA]

[ ] Mailing Address [NA]
Street

[NA]
City

[NA] [NA]
State Zip

Employer ID Number .....[NA]

Date of Sale .....[NA] [ ][ ] [ ][ ]
Mo. Day Year

Contact Person [NA]

Telephone Number .....[NA]-[ ][ ][ ]-[ ][ ][ ][ ]

1.15 Facility Sold -- If you sold this facility during the reporting year, provide the following information about the buyer:

CBI Name of Buyer [NA]

[ ] Mailing Address [NA]
Street

[NA]
City

[NA] [NA]
State Zip

Employer ID Number .....[NA]

Date of Purchase .....[NA] [ ][ ] [ ][ ]
Mo. Day Year

Contact Person [NA]

Telephone Number .....[NA]-[ ][ ][ ]-[ ][ ][ ][ ]

[ ] Mark (X) this box if you attach a continuation sheet.

1.16 For each classification listed below, state the quantity of the listed substance that was manufactured, imported, or processed at your facility during the reporting year.

CBI	Classification	Quantity (kg/yr)
[ ]	Manufactured	NA
	Imported	NA
	Processed (include quantity repackaged)	42,266 kg/yr
	Of that quantity manufactured or imported, report that quantity:	
	In storage at the beginning of the reporting year	NA
	For on-site use or processing	NA
	For direct commercial distribution (including export)	NA
	In storage at the end of the reporting year	NA
	Of that quantity processed, report that quantity:	
	In storage at the beginning of the reporting year	10,129 Kg
	Processed as a reactant (chemical producer)	42,266 Kg
	Processed as a formulation component (mixture producer)	NA
	Processed as an article component (article producer)	NA
	Repackaged (including export)	NA
	In storage at the end of the reporting year	0 Kg

[ ] Mark (X) this box if you attach a continuation sheet.

PART C IDENTIFICATION OF MIXTURES

1.17 Mixture -- If the listed substance on which you are required to report is a mixture or a component of a mixture, provide the following information for each component chemical. (If the mixture composition is variable, report an average percentage of each component chemical for all formulations.)

CBI

[ ]

Component Name	Supplier Name	Average % Composition by Weight (specify precision, e.g., 45% ± 0.5%)
NA	NA	NA
NA	NA	NA
NA	NA	NA
NA	NA	NA
NA	NA	NA
NA	NA	NA
		Total 100%

[ ] Mark (X) this box if you attach a continuation sheet.

2.04 State the quantity of the listed substance that your facility manufactured, imported, or processed during the 3 corporate fiscal years preceding the reporting year in descending order.

CBI

[ ] Year ending ..... [0][4] Mo. [8][7] Year

Quantity manufactured ..... NA kg

Quantity imported ..... NA kg

Quantity processed ..... 98,186 kg

Year ending ..... [0][4] Mo. [8][6] Year

Quantity manufactured ..... NA kg

Quantity imported ..... NA kg

Quantity processed ..... 114,096 kg

Year ending ..... [0][4] Mo. [8][5] Year

Quantity manufactured ..... NA kg

Quantity imported ..... NA kg

Quantity processed ..... 125,269 kg

2.05 Specify the manner in which you manufactured the listed substance. Circle all appropriate process types.

CBI

[ ]

Continuous process ..... NA 1

Semicontinuous process ... NA 2

Batch process ..... NA 3

[ ] Mark (X) this box if you attach a continuation sheet.

2.06 Specify the manner in which you processed the listed substance. Circle all appropriate process types.

CBI

[ ]

Continuous process 1

Semicontinuous process 2

Batch process ..... (3)

2.07 State your facility's name-plate capacity for manufacturing or processing the listed substance. (If you are a batch manufacturer or batch processor, do not answer this question.)

CBI

[ ]

Manufacturing capacity ..... NA kg/yr

Processing capacity ..... NA kg/yr

2.08 If you intend to increase or decrease the quantity of the listed substance manufactured, imported, or processed at any time after your current corporate fiscal year, estimate the increase or decrease based upon the reporting year's production volume.

CBI

[ ]

	Manufacturing Quantity (kg)	Importing Quantity (kg)	Processing Quantity (kg)
Amount of increase	NA	NA	NA
Amount of decrease	NA	NA	100% General Latex ceased processing during the reporting year.

[ ] Mark (X) this box if you attach a continuation sheet.

2.09 For the three largest volume manufacturing or processing process types involving the listed substance, specify the number of days you manufactured or processed the listed substance during the reporting year. Also specify the average number of hours per day each process type was operated. (If only one or two operations are involved, list those.)

CBI

[ ]

	Days/Year	Average Hours/Day
Process Type #1 (The process type involving the largest quantity of the listed substance.)		
Manufactured	NA	NA
Processed	42	6
Process Type #2 (The process type involving the 2nd largest quantity of the listed substance.)		
Manufactured	NA	NA
Processed	NA	NA
Process Type #3 (The process type involving the 3rd largest quantity of the listed substance.)		
Manufactured	NA	NA
Processed	NA	NA

2.10 State the maximum daily inventory and average monthly inventory of the listed substance that was stored on-site during the reporting year in the form of a bulk chemical.

CBI

[ ]

Maximum daily inventory ..... Response not required for TDI ..... _____ kg

Average monthly inventory ..... _____ kg

[ ] Mark (X) this box if you attach a continuation sheet.

2.11 Related Product Types -- List any byproducts, coproducts, or impurities present with the listed substance in concentrations greater than 0.1 percent as it is manufactured, imported, or processed. The source of byproducts, coproducts, or impurities means the source from which the byproducts, coproducts, or impurities are made or introduced into the product (e.g., carryover from raw material, reaction product, etc.).

CBI

[ ]

CAS No.	Chemical Name	Byproduct, Coproduct or Impurity[1]	Concentration (%) (specify ± % precision)	Source of Byproducts, Coproducts, or Impurities
25265-71-8	Dipropyleneglycol	C	17% ± 3%	Reactant

[1]Use the following codes to designate byproduct, coproduct, or impurity:

B = Byproduct
C = Coproduct
I = Impurity

[ ] Mark (X) this box if you attach a continuation sheet.

2.12 Existing Product Types -- List all existing product types which you manufactured, imported, or processed using the listed substance during the reporting year. List the quantity of listed substance you use for each product type as a percentage of the total volume of listed substance used during the reporting year. Also list the CBI quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to [ ] the instructions for further explanation and an example.)

a. Product Types[1]	b. % of Quantity Manufactured, Imported, or Processed	c. % of Quantity Used Captively On-Site	d. Type of End-Users[2]
B	100%	0%	I

[1]Use the following codes to designate product types:

A = Solvent
B = Synthetic reactant
C = Catalyst/Initiator/Accelerator/Sensitizer
D = Inhibitor/Stabilizer/Scavenger/Antioxidant
E = Analytical reagent
F = Chelator/Coagulant/Sequestrant
G = Cleanser/Detergent/Degreaser
H = Lubricant/Friction modifier/Antiwear agent
I = Surfactant/Emulsifier
J = Flame retardant
K = Coating/Binder/Adhesive and additives
L = Moldable/Castable/Rubber and additives
M = Plasticizer
N = Dye/Pigment/Colorant/Ink and additives
O = Photographic/Reprographic chemical and additives
P = Electrodeposition/Plating chemicals
Q = Fuel and fuel additives
R = Explosive chemicals and additives
S = Fragrance/Flavor chemicals
T = Pollution control chemicals
U = Functional fluids and additives
V = Metal alloy and additives
W = Rheological modifier
X = Other (specify) _____

[2]Use the following codes to designate the type of end-users:

I = Industrial
CM = Commercial
CS = Consumer
H = Other (specify) _____

[ ] Mark (X) this box if you attach a continuation sheet.

2.13 Expected Product Types -- Identify all product types which you expect to manufacture, import, or process using the listed substance at any time after your current corporate fiscal year. For each use, specify the quantity you expect to manufacture, import, or process for each use as a percentage of the total volume of listed substance used during the reporting year. Also list the quantity of listed substance used captively on-site as a percentage of the value listed under column b., and the types of end-users for each product type. (Refer to the instructions for further explanation and an example.)

CBI

[ ]

a. Product Types[1]	b. % of Quantity Manufactured, Imported, or Processed	c. % of Quantity Used Captively On-Site	d. Type of End-Users[2]
X	NA	NA	NA

[1]Use the following codes to designate product types:

A = Solvent
B = Synthetic reactant
C = Catalyst/Initiator/Accelerator/Sensitizer
D = Inhibitor/Stabilizer/Scavenger/Antioxidant
E = Analytical reagent
F = Chelator/Coagulant/Sequestrant
G = Cleanser/Detergent/Degreaser
H = Lubricant/Friction modifier/Antiwear agent
I = Surfactant/Emulsifier
J = Flame retardant
K = Coating/Binder/Adhesive and additives
L = Moldable/Castable/Rubber and additives
M = Plasticizer
N = Dye/Pigment/Colorant/Ink and additives
O = Photographic/Reprographic chemical and additives
P = Electrodeposition/Plating chemicals
Q = Fuel and fuel additives
R = Explosive chemicals and additives
S = Fragrance/Flavor chemicals
T = Pollution control chemicals
U = Functional fluids and additives
V = Metal alloy and additives
W = Rheological modifier
X = Other (specify) None

[2]Use the following codes to designate the type of end-users:

I = Industrial
CM = Commercial
CS = Consumer
H = Other (specify) _____

[ ] Mark (X) this box if you attach a continuation sheet.

2.14 CBI [ ] Final Product -- Complete the following table for each type of final product manufactured, imported, or processed at your facility that contains the listed substance other than as an impurity.

a. Product Type[1]	b. Final Product's Physical Form[2]	c. Average % Composition of Listed Substance in Final Product	d. Type of End-Users[3]
B	B	83%	I

[1]Use the following codes to designate product types:

A = Solvent
B = Synthetic reactant
C = Catalyst/Initiator/Accelerator/Sensitizer
D = Inhibitor/Stabilizer/Scavenger/Antioxidant
E = Analytical reagent
F = Chelator/Coagulant/Sequestrant
G = Cleanser/Detergent/Degreaser
H = Lubricant/Friction modifier/Antiwear agent
I = Surfactant/Emulsifier
J = Flame retardant
K = Coating/Binder/Adhesive and additives
L = Moldable/Castable/Rubber and additives
M = Plasticizer
N = Dye/Pigment/Colorant/Ink and additives
O = Photographic/Reprographic chemical and additives
P = Electrodeposition/Plating chemicals
Q = Fuel and fuel additives
R = Explosive chemicals and additives
S = Fragrance/Flavor chemicals
T = Pollution control chemicals
U = Functional fluids and additives
V = Metal alloy and additives
W = Rheological modifier
X = Other (specify) _____

[2]Use the following codes to designate the final product's physical form:

A = Gas
B = Liquid
C = Aqueous solution
D = Paste
E = Slurry
F1 = Powder
F2 = Crystalline solid
F3 = Granules
F4 = Other solid
G = Gel
H = Other (specify) _____

[3]Use the following codes to designate the type of end-users:

I = Industrial
CM = Commercial
CS = Consumer
H = Other (specify) _____

[ ] Mark (X) this box if you attach a continuation sheet.

2.15 Circle all applicable modes of transportation used to deliver bulk shipments of the
CBI listed substance to off-site customers.

[ ] Truck ..... (1)

Railcar 2

Barge, Vessel 3

Pipeline 4

Plane 5

Other (specify) _____ 6

2.16 Customer Use -- Estimate the quantity of the listed substance used by your customers or prepared by your customers during the reporting year for use under each category
CBI of end use listed (i-iv).

[ ]

Category of End Use

i. Industrial Products

Chemical or mixture ..... NA kg/yr

Article ..... 42266 kg/yr

ii. Commercial Products

Chemical or mixture ..... NA kg/yr

Article ..... NA kg/yr

iii. Consumer Products

Chemical or mixture ..... NA kg/yr

Article ..... NA kg/yr

iv. Other

Distribution (excluding export) ..... NA kg/yr

Export ..... NA kg/yr

Quantity of substance consumed as reactant ..... NA kg/yr

Unknown customer uses ..... NA kg/yr

[ ] Mark (X) this box if you attach a continuation sheet.

SECTION 3 PROCESSOR RAW MATERIAL IDENTIFICATION

PART A GENERAL DATA

3.01 Specify the quantity purchased and the average price paid for the listed substance for each major source of supply listed. Product trades are treated as purchases.
CBI The average price is the market value of the product that was traded for the listed substance.
[ ]

Source of Supply	Quantity (kg)	Average Price ($/kg)
The listed substance was manufactured on-site.	NA	NA
The listed substance was transferred from a different company site.	NA	NA
The listed substance was purchased directly from a manufacturer or importer.	42266 Kg	$2.215/Kg.
The listed substance was purchased from a distributor or repackager.	NA	NA
The listed substance was purchased from a mixture producer.	NA	NA

3.02 Circle all applicable modes of transportation used to deliver the listed substance to
CBI your facility.
[ ]

Truck ..... (1)
Railcar 2
Barge, Vessel 3
Pipeline 4
Plane 5
Other (specify) _____ 6

[ ] Mark (X) this box if you attach a continuation sheet.

3.03 a. Circle all applicable containers used to transport the listed substance to your CBI facility.

[ ]

Bags 1

Boxes 2

Free standing tank cylinders 3

Tank rail cars 4

Hopper cars 5

Tank trucks ..... (6)

Hopper trucks 7

Drums 8

Pipeline 9

Other (specify) _____ 10

b. If the listed substance is transported in pressurized tank cylinders, tank rail cars, or tank trucks, state the pressure of the tanks.

Tank cylinders ..... NA mmHg

Tank rail cars ..... NA mmHg

Tank trucks ..... NA mmHg

[ ] Mark (X) this box if you attach a continuation sheet.

PART B RAW MATERIAL IN THE FORM OF A MIXTURE

3.04 If you obtain the listed substance in the form of a mixture, list the trade name(s) of the mixture, the name of its supplier(s) or manufacturer(s), an estimate of the CBI average percent composition by weight of the listed substance in the mixture, and the amount of mixture processed during the reporting year.

[ ]

Trade Name	Supplier or Manufacturer	Average % Composition by Weight (specify ± % precision)	Amount Processed (kg/yr)
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA
NA	NA	NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

PART C RAW MATERIAL VOLUME

3.05 CBI [ ] State the quantity of the listed substance used as a raw material during the reporting year in the form of a class I chemical, class II chemical, or polymer, and the percent composition, by weight, of the listed substance.

	Quantity Used (kg/yr)	% Composition by Weight of Listed Substance in Raw Material (specify ± % precision)
Class I chemical	42,266 Kg	99.99%
	NA	NA
	NA	NA
Class II chemical	NA	NA
	NA	NA
	NA	NA
Polymer	NA	NA
	NA	NA
	NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

SECTION 4 PHYSICAL/CHEMICAL PROPERTIES

General Instructions:

If you are reporting on a mixture as defined in the glossary, reply to questions in Section 4 that are inappropriate to mixtures by stating "NA -- mixture."

For questions 4.06-4.15, if you possess any hazard warning statement, label, MSDS, or other notice that addresses the information requested, you may submit a copy or reasonable facsimile in lieu of answering those questions which it addresses.

PART A PHYSICAL/CHEMICAL DATA SUMMARY

4.01 Specify the percent purity for the three major[1] technical grade(s) of the listed substance as it is manufactured, imported, or processed. Measure the purity of the substance in the final product form for manufacturing activities, at the time you import the substance, or at the point you begin to process the substance.

CBI
[ ]

	Manufacture	Import	Process
Technical grade #1	NA % purity	NA % purity	99.99 % purity
Technical grade #2	NA % purity	NA % purity	NA % purity
Technical grade #3	NA % purity	NA % purity	NA % purity

[1]Major = Greatest quantity of listed substance manufactured, imported or processed.

4.02 Submit your most recently updated Material Safety Data Sheet (MSDS) for the listed substance, and for every formulation containing the listed substance. If you possess an MSDS that you developed and an MSDS developed by a different source, submit your version. Indicate whether at least one MSDS has been submitted by circling the appropriate response.

Yes ..... (1)

No 2

Indicate whether the MSDS was developed by your company or by a different source.

Your company ..... (1)

Another source ..... (2)

[X] Mark (X) this box if you attach a continuation sheet.

GENERAL LATEX AND CHEMICAL CORPORATION

MATERIAL SAFETY DATA SHEET

SECTION I

GENERAL LATEX & CHEMICAL CORPORATION

EMERGENCY TELEPHONE — CHEMTREC 800/424-9300

11266 JERSEY BLVD., RANCHO CUCAMONGA, CA 91730 PHONE: (714) 987-6261

CHEMICAL NAME AND SYNONYMS: TDI & Polyol Blend

TRADEMARK AND FORMULA: VULTATHANE US1B

SECTION II - HAZARDOUS INGREDIENTS

	CAS #	PEL	TLV
Toluene Diisocyanate (TDI)	26471-62-5	N/E	N/E
Contains:			
Toluene Diisocyanate, 2,4-isomer	584-84-9	0.02 ppm	0.005 ppm
Toulene Diisocyanate, 2,6-isomer	91-08-7	N/E	N/E

SECTION III - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE

0.02 ppm ceiling for TDI (OSHA); 0.005 ppm recommended by ACGIH

EFFECTS OF OVEREXPOSURE

Contact with liquid causes eye & skin irritation. Inhalation causes irritation of lungs & throat, shortness of breath, coughing, & headache. Exposure is accumulative & can result in allergic sensitivity. Exposure to aerosols & mists represents greater risk.

EMERGENCY AND FIRST AID PROCEDURES

Inhalation --- Remove from area. Obtain medical attention immediately.
Skin Contact --- Rinse with plenty of soap and water. Obtain medical attention.
Eye Contact --- Flush eyes with plenty of water. Contact physician immediately.
Ingestion --- Contact physician immediately for treatment instructions.

CARCINOGENIC STATUS: The NTP Fourth Annual Report on Carcinogens names TDI as a substance that may reasonably be anticipated to be a carcinogen. Refer to supplier Material Safety Data Sheet attached.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASHPOINT (METHOD USED)

270 degrees Fahrenheit, Tag Open Cup

EXTINGUISHING MEDIA

Foam, carbon dioxide, or dry chemical recommended.

SPECIAL FIRE FIGHTING PROCEDURES

Firefighters must be equipped with self-contained breathing apparatus & full protective gear.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Water contamination will produce carbon dioxide. Pressure build up will occur in closed containers or confined areas. At temperatures above 400 degrees Fahrenheit polymeric TDI can polymerize & decompose causing pressure build up in closed containers.

(CONTINUED ON REVERSE SIDE)

(PREPARATION DATE)

JAN 28 1987

SECTION V - PHYSICAL DATA

VAPOR DENSITY (AIR = 1)	6.0	SPECIFIC GRAVITY (H_2O = 1)	1.16 - 1.24
SOLUBILITY IN WATER	Reacts	Vapor pressure is approximately 0.01 mm Hg @ 20 degrees C.	
APPEARANCE AND ODOR	Clear to hay color liquid with a slight aromatic odor.		

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID: Avoid temperature extremes.
	STABLE	X	

INCOMPATABILITY (MATERIALS TO AVOID)
Will react with water, alcohols, amines, strong bases & acids, & metal compounds.

HAZARDOUS DECOMPOSITION PRODUCTS
By high heat & fire: carbon monoxide, carbon dioxide, oxides of nitrogen, benzene, acetaldehyde, acetone, and traces of hydrogen cyanide.

HAZARDOUS POLYMERIZATION	MAY OCCUR	X	CONDITIONS TO AVOID: Contact with moisture and other materials which react with isocyanates.
	WILL NOT OCCUR		

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Wear protective clothing. Evacuate and ventilate spill area. Absorb in an absorbent sweeping compound. Cover with water containing 1% amine and 5% isopropanol & allow to react at least 10 minutes. Collect in open containers, add additional decontaminate, and allow to stand 48 hours. Wash down area with decontaminate solution.

WASTE DISPOSAL

This material contains hazardous ingredients (See Section II). Local, State, & Federal regulations must be consulted to determine correct disposal method.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION

If TLV for TDI is exceeded, wear NIOSH approved air-supplied respirator. Due to poor warning properties of TDI, proper fit and timely replacement of filter elements must be ensured.

PROTECTIVE GLOVES: Vinyl or Rubber	EYE PROTECTION: Chemical Safety Goggles

OTHER PROTECTIVE EQUIPMENT: Safety shower and eye wash stations.

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

This product reacts with water to produce carbon dioxide gas. This gas can cause sealed containers to expand and rupture. Avoid temperature extremes. Keep from freezing.

Mod Asphalt 1/89

K 7/2

MATERIAL SAFETY DATA SHEET

Polyurethanes
Rubicon Chemicals Inc.
Wilmington, Delaware 19897
Phone (302) 575-3000 (24 Hours)

002290

Form No.: 3153(E)
Date: 04/29/87

SECTION 1 NAME & HAZARD SUMMARY

Material name:
RUBINATE TDI

Hazard summary (as defined by OSHA Hazard Communication Standard, 29 CFR 1910.1200):
Physical hazards: Unstable
Health hazards: Inhalation (TLV), irritant (skin, mucous membranes, skin sensitizer), corrosive (eye), harmful (respiratory sensitizer, lung injury)

Read the entire MSDS for a more thorough evaluation of the hazards.

SECTION 2 INGREDIENTS

	%	TLV (ACGIH)
Toluene diisocyanate, 2,4-isomer (CAS 584-84-9)	ca 80	0.005 ppm
Toluene diisocyanate, 2,6-isomer (CAS 91-08-7)	ca 20	Not listed

Ingredients not precisely identified are proprietary or nonhazardous. All ingredients appear on the EPA TSCA Inventory. Values are not product specifications. gt = greater than, lt = less than, ca = approximately

SECTION 3 PHYSICAL DATA

Boiling point: 484°F, 251°C
Vapor pressure (mmHg at 20°C): 0.02
Vapor density (air = 1): 6.0
Solubility in water: Reacts
pH: Not applicable
Specific gravity: 1.22
% Volatile by volume: Negligible
Appearance and odor: Clear colorless liquid with sharp pungent odor

SECTION 4 FIRE AND EXPLOSION HAZARD DATA

Flash point (and method): 270°F, 132.2°C (open cup)
Autoignition temp.: No data
Flammable limits (STP): 0.9 - 9.5%

Extinguishing media:
Dry chemical, foam, carbon dioxide, halon 1211. If water is used, use very large quantities. The reaction between water and hot isocyanate may be vigorous.

Special fire fighting protective equipment:
Self-contained breathing apparatus with full facepiece and protective clothing.

Unusual fire and explosion hazards:
Water contamination will produce carbon dioxide. Do not reseal contaminated containers as pressure buildup may rupture them.

RUBINATE TDI

SECTION 5 REACTIVITY DATA

Stability:
Stable under normal conditions.

Incompatibility (materials to avoid):
This product will react with any materials containing active hydrogens, such as water, alcohol, ammonia, amines, alkalies. The reaction with water is very slow below 50°C but is accelerated at higher temperatures and in the presence of alkalies, tertiary amines, and metal compounds. Some reactions can be violent.

Hazardous decomposition products:
Combustion products: Carbon dioxide, carbon monoxide, nitrogen oxides, traces of hydrogen cyanide.

Hazardous polymerization:
May occur. High temperatures and the presence of alkalies, tertiary amines, and metal compounds will accelerate polymerization. The heat from the polymerization reaction can potentially lead to ignition. Possible evolution of carbon dioxide gas may rupture closed containers.

SECTION 6 HEALTH HAZARD ASSESSMENT

General:
The health hazard assessment is based on information from the scientific literature.

Ingestion:
The acute oral LD_{50} in rat is reported to be 5.8 g/kg. Relative to other materials, a single dose of this product is practically nontoxic by ingestion. Irritation of the mouth, pharynx, esophagus and stomach can develop following ingestion.

Eye contact:
This material is reported to induce chemical burns in rabbit eye studies; a similar degree of eye injury will probably develop after contact with human eyes.

Skin contact:
This material is reported to be severely irritating in rabbit dermal irritation studies and will probably irritate human skin. Dermatitis and skin sensitization can develop after repeated and/or prolonged contact with human skin.

Skin absorption:
The acute dermal LD_{50} in rabbit is reported to be above 16 g/kg. Systemically toxic concentrations will probably not be absorbed through human skin.

Inhalation:
TDI vapors are easily generated and are lethal to rats via inhalation at concentrations below 10 ppm. A no effect level for rats of about 0.1 ppm was determined from a subacute study. This and other data indicate the vapors and aerosols of TDI are highly toxic relative to the vapors of other compounds. Vapors and aerosols of TDI strongly irritate the upper and lower respiratory tract. Human experience indicates that TDI will induce an asthma-like respiratory sensitization in some individuals. If applications which involve spraying (e.g. aerosols and mists) or if elevated temperatures are used, even higher vapor concentrations may result and introduce a greater degree of risk of inhalation injury.

SECTION 6 HEALTH HAZARD ASSESSMENT (continued)

Inhalation (continued):

Rat and mouse toxicity and carcinogenicity studies were conducted with two years of inhalation exposure to vapors of TDI at concentrations of 0.05 and 0.15 ppm. No indication of carcinogenic effect was observed. However, mice exposed to 0.15 ppm for two years showed reduced weight gain and signs of irritation in the upper and lower respiratory tract. No other effect of toxicological significance was observed.

Other effects of overexposure:

Vapors and aerosols can irritate eyes, skin, and upper respiratory tract resulting in sinusitis, bronchitis, and wheezing; irritation to the lower respiratory tract (pulmonary edema) can also be induced. Allergic respiratory responses can occur in sensitized individuals. There are two studies which allege that workers exposed to TDI at or near the current TLV have experienced impaired ventilatory capacities. These findings have not been independently substantiated.

The National Toxicology Program (NTP) 4th Annual Report on Carcinogens (1985) lists TDI as a substance that may reasonably be anticipated to be a carcinogen based on a NTP Technical Report. In the cited study, laboratory animals gavaged TDI in corn oil developed cancer. In our view, the inhalation study is of more potential biological relevance to man.

First aid procedures:

Skin: Remove contaminated clothing and footwear. Wash material off the skin with plenty of soap and water. Get medical attention. Wash contaminated clothing and decontaminate footwear before reuse.

Eyes: Immediately flush with plenty of water for at least 15 minutes and have eyes examined and treated by medical personnel.

Ingestion: DO NOT induce vomiting. Give one or two glasses of water to drink and refer victim to medical personnel. (Never give anything by mouth to an unconscious person.)

Inhalation: Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is labored, give oxygen. Consult medical personnel.

Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage following ingestion.

SECTION 7 SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled:

Wear skin, eye and respiratory protection during cleanup. Soak up liquid with absorbent and shovel into waste container. Cover container, but do not seal, and remove from work area. Prepare a decontamination solution of 0.2-0.5% liquid detergent and 3-8% concentrated ammonium hydroxide in water (5-10% sodium carbonate may be used in place of the ammonium hydroxide solution). In very cold situations, a mixture of isopropanol and perchloroethylene can be used. Treat the spill area with decontamination solution, using about 10 parts of the solution for each part of the spill, and allow it to react for at least 10 minutes. Carbon dioxide will be evolved, leaving insoluble polyureas.

For major transportation spills, call Chemtrec (Chemical Transportation Emergency Center), (800) 424-9300.

4.03 Submit a copy or reasonable facsimile of any hazard information (other than an MSDS) that is provided to your customers/users regarding the listed substance or any formulation containing the listed substance. Indicate whether this information has been submitted by circling the appropriate response.

Yes ..... (1)

No 2

4.04 For each activity that uses the listed substance, circle all the applicable number(s) corresponding to each physical state of the listed substance during the activity listed. Physical states for importing and processing activities are determined at the time you import or begin to process the listed substance. Physical states for manufacturing, storage, disposal and transport activities are determined using the final state of the product.

CBI

[ ]

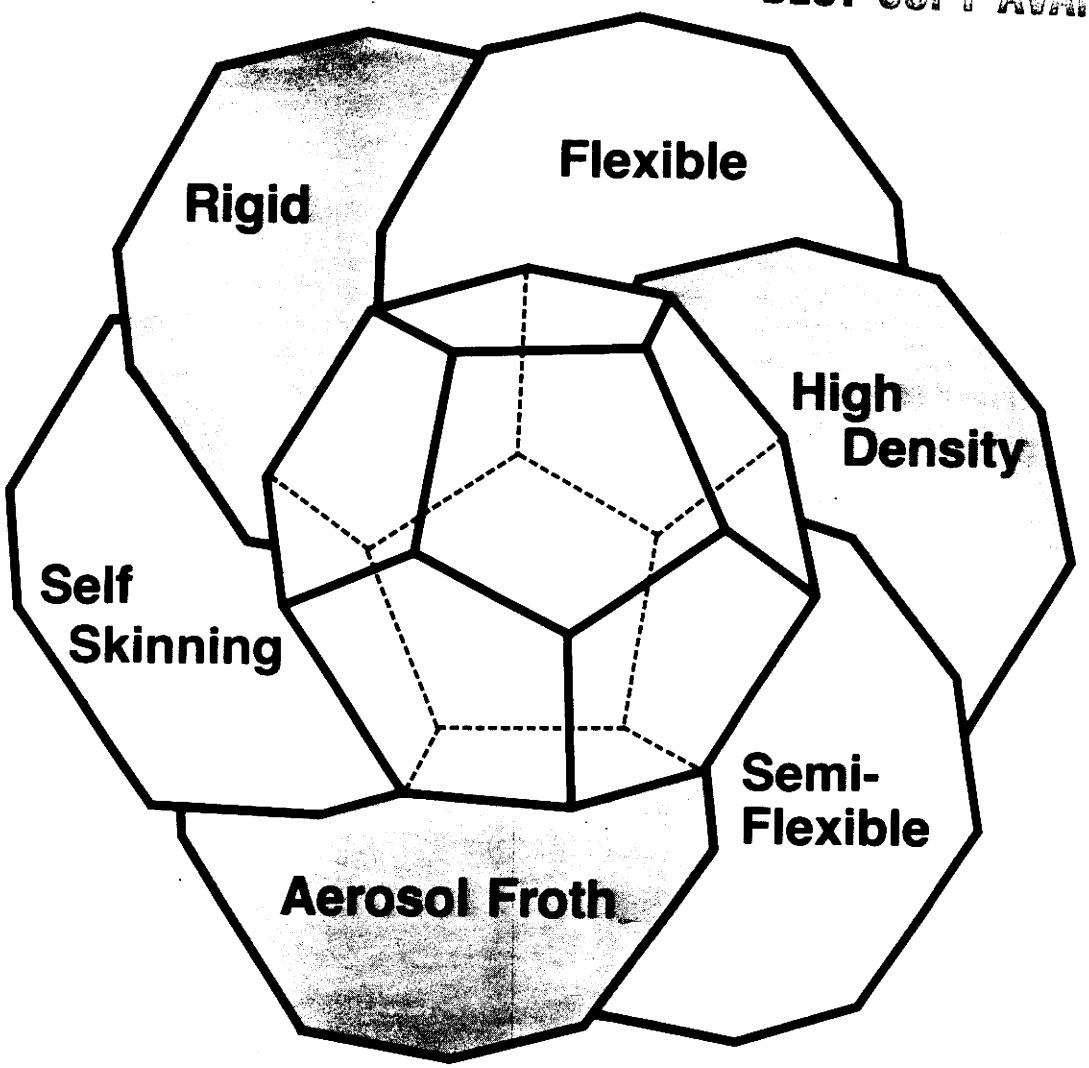
	Physical State				
Activity	Solid	Slurry	Liquid	Liquified Gas	Gas
Manufacture	1	2	3	4	5
Import	1	2	3	4	5
Process	1	2	(3)	4	5
Store	1	2	(3)	4	5
Dispose	(1)	2	3	4	5
Transport	1	2	(3)	4	5

[X] Mark (X) this box if you attach a continuation sheet.

Vultafoam Technical Bulletin

Subject

General Safety Information



Urethane Advantages

- **In Situ Application**
- **Insulating Efficiency**
- **Strength at Low Weight**
- **Good Adhesion**
  To Most Substrates
- **Bouyancy**
- **Moldability**
  Any Shape, Any Surface Detail
- **Machinability**
  With Normal Woodworking Tools
- **Ease of Fabrication**
  One Step, Usually
- **Resistant**
  To Most Solvents and Microorganisms

eneral Latex and Chemical Corporation

nformation presented in this bulletin is intended as a summary of the large body of published information on y and flammability to date, but must not be considered conclusive. Safety and flammability regulations are ect to constant review and change by local, state, and federal agencies.

GL

Flammability Characteristics

Rigid urethane foam has achieved an extensive history in a variety of applications, including insulation (low density) and simulated wood (high density). For a variety of reasons, the performance of the urethane has been far superior to other more conventional materials.

One area of continuing concern has been fire potential, or flammability characteristics. Significant progress has been made in providing a degree of resistance to flame without the loss of physical properties. However, rigid urethane foams are combustibles like other materials such as cork, wood, or other organic foams.

Classification of the burning character of urethane foams and isocyanurate foams has been made according to test methods intended to simulate various sources of heat and/or flame. These testing procedures are considered small to medium scale in scope; the relationship between these laboratory tests and foam performance in actual fire conditions is not clearly established, and no inference should be made. All cellular plastics, regardless of the "degree of flame resistance", may exhibit rapid spread of surface flame when exposed to large heat or flame sources. Flame spread can be especially hazardous in enclosed spaces. Appropriate measures against fire sources (i.e., welding, flammable solvents, open flame, etc.) must be taken to insure adequate protection of the foam.

In many cases the flammability characteristic has been adequate to meet application situations. However, it is necessary to re-emphasize the conditions which can cause a significant fire hazard even with the best available fire retardant urethane foams. This potentially hazardous situation occurs when rigid foam is applied in a confined space with limited air circulation. In this type of application, it is mandatory to immediately install a suitable fire-protective covering over the foam. If suitable precautions are taken this flammability hazard can be minimized.

The fire-retardant feature of urethane foam is predicated upon the foam burning on the surface area forming a fire protective intumescent surface char. In this situation the original surface has been subjected to a brief, but intense flash fire with attendant heavy smoke and combustible gases. Under most conditions, this surface fire is of brief duration and is almost immediately extinguished upon the removal of the flame source. If this occurs in a confined area, however, sufficient accumulation of combustible gases can cause further fire or low-order explosions. If the structural design allows the temperature to rise to a sufficiently high level, destructive distillation of the foam will proceed to a point where the surface char does not provide sufficient protection, and foam will burn until entirely consumed.

Isocyanurate foams have inherently higher resistance to both temperature and flame, but may exhibit the same type of surface burning characteristics as urethane foams.

It is evident that these conditions are encountered chiefly in interior applications, thus requiring the immediate application of a protective covering or coating on the exposed foam surface. In a confined area, such as a tunnel or flue-shaped structure, foam should not be applied under any condition.

Precautions Against Fire Rising From The Application of Rigid Urethane Foam

Rigid urethane foam is a low-density cellular plastic with excellent insulating properties whether it is applied as boardstock, foamed-in-place, frothed or sprayed. However, it is a combustible like other organic materials such as wood, cork or other organic foams. If suitable precautions are taken (detailed below), this hazard can be substantially reduced.

Fire rating. Fire retardant rigid urethane foams are often classified by tests intended to simulate exposure of the foam to controlled sources of heat and flame. There is no test designed to simulate actual fire conditions at the present time; all testing results must therefore be considered comparative for simulation under low heat and flame conditions only.

Precautions during application:

A. Do not apply rigid urethane foam to interior walls of any confined, narrow, or flue-like structure.
B. Do not apply rigid urethane foam to interior walls and ceilings of rooms or other enclosures without promptly covering the exposed foam with a suitable fire-resistant covering.
C. Avoid welding or other operation involving naked flames or high temperature until the foam is suitably protected. Also, before the foam is protected, flames or high temperature must not penetrate the foam area from the outside, e.g., by welding or cutting behind the insulation.
D. Dust arising from sanding or buffing operations, in common with other dust, constitutes a fire hazard.
E. Avoid the storage of flammable solvents or solvent-containing liquids such as adhesives or paints, flammable gases, and flammable solids such as paper, wood, plastic foams, etc., in the immediate area of the insulation.

Protective covering on exposed foam. Coverings or coatings used to protect rigid urethane foam should be selected for their thermal protection of the foam proportionate to the space occupancy fire hazards.

Emulsion paints or mastics can be formulated to control surface flames where low-order flame ignition takes place. In large fire situations, surface coatings may not be adequate protection.

When combustible materials in a confined interior space ignite and radiate substantial heat through the coating to the foam, it is possible for the foam to ignite even though flames have not penetrated the coating. Accordingly, plaster or gypsum wallboard can be a more effective deterrent against autoignition of the foam than emulsion paints or other liquid coatings.

The following list of coverings and coatings are suggested as a guide:

A. metal sheets or metal foil
B. plaster-type materials or gypsum wallboard
C. fire-resistant emulsion paints
D. fire-resistant mastics

Repair work. After the foam is installed, if welding or other operations involving flame or high temperature are carried out, the foam should be removed from around the repair area at least one foot or an obvious safe distance. Exposed foam should be protected from naked flames with an asbestoes blanket.

Pyrolysis Products of Burning Foam

Pyrolysis of cellular plastics under various conditions is a continuing study; publications to date primarily have been concerned with low-density insulation foams. Future reports will expand on the information, but the comments below should remain valid.

The products of combustion depend upon the type of urethane, the temperature of combustion, and oxygen availability. General conclusions reached were:

1. The evolution of heavy, dense black smoke is present in all combustion gases.
2. This smoke is very irritating; that is, the gases in the smoke cause severe lachrymation.
3. The greatest volume of gas is composed mainly of carbon dioxide, with carbon monoxide, nitrogen and low molecular weight hydrocarbons present in small quantities.
4. Small amounts of toxic gases such as phosgene, monomeric isocyanate, and hydrogen halides may be present.
5. One of the greatest dangers of a polyurethane fire comes from the smoke (heat and carbon oxides) through suffocation or lung damage from heat. Oxygen depletion also may result. Of prime importance is the inherent danger presented by the large volume of smoke. Visibility reduction may prevent occupants from seeing available means of exit from the fire area.

Smoking. Smoking in areas adjacent to foam operations can produce pyrolysis products. Vapors of blowing agents (fluorinated hydrocarbons) decompose to form hydrogen halides, which are extremely irritating to the lungs. Smoking, therefore, should not be permitted in the foam operation area.

Factory heating methods. The pyrolysis of normal vapors associated with foam operations are hazardous. Therefore, heating units which operate by live flame should not be used. Outside air supplies can be force fed to blower units, provided that exhaust stacks from the foam area are not near the heater.

Special note on factory heating. Corrosion of in-plant equipment may take place if heating units are of the open flame type. Pyrolysis of the plant atmosphere (drawn into the heating unit) produces corrosion "catalysts" (hydrogen halides or acid halides). These materials will cause corrosion at concentration levels well below toxic or odor levels.

Urethane Toxicological Properties

The following recommendations are suggested for guidance in identifying the hazard potential of using Vultafoam® formulations. If these recommendations are adhered to, experiences from toxic vapors or exposure in handling materials of this nature should be minimized.

Final Foam Product

A properly produced cured section of urethane foam (whether rigid or flexible) should exhibit no adverse toxicological property. For a short period of time a characteristic odor will come from the foam; however, no problems should result from this odor.

An improperly mixed foam will have toxicological properties comparable to one or more of the properties of the individual ingredients listed below.

Part "A" of the system can contain:
1. isocyanates
2. blowing agents
3. cell control agents
4. flame retarders

Part "B" of the system can contain:
1. polyols
2. catalysts
3. cell control agents
4. blowing agents
5. flame retarders

The toxicological properties of a compounded system can be determined from the individual ingredients listed below. The isocyanate presents the major toxicological hazard; the remainder of the toxic chemicals are present in small percentages. The information presented is the "total" toxicity hazard, which may tend to overemphasize the hazard contribution of the minor ingredients. Physicians consulted in case of industrial accidents should be provided this detailed information.

Isocyanates

All materials contained in this classification present the most serious toxicity hazard, particularly by eye contact and respiratory exposure. The vapors of the isocyanates are irritating to the eyes. If liquid isocyanate contacts the eye, burns may result. Any contact of these materials with the eyes must be immediately followed by washing with running water for at least 15 minutes. Medical attention must be obtained promptly.

The vapors are irritating to the nose, throat and lungs, and are capable of causing an allergic response, usually manifested as an asthmatic sensitization. The sensitization can result from a single, more or less massive exposure, or from a series of smaller exposures.

The odor and/or irritating properties of the vapors from the isocyanates are not adequate to warn of hazardous concentrations; chemical analysis of the air must be used to determine the concentration of isocyanate in air.

Persons should not be exposed, unprotected, to isocyanate concentrations if sensitization is to be avoided. An air supplied hood, or self-contained breathing apparatus should be put on prior to entering any area where TDI is above 0.005 parts per million (ppm) Threshhold Limit Value (TLV), or where MDI is above 0.02 ppm TLV. These Threshhold Limit Values are subject to change in the future by either Federal or State regulating agencies.

Isocyanate-containing materials may cause burns to the skin. If contact should be made with the skin, the affected area must be flushed immediately with copious quantities of water, and washed with soap and plenty of water. If an irritation persists after a thorough washing, medical attention should be obtained.

Clothing contaminated with isocyanates should be removed immediately. The skin under the clothing should be washed thoroughly even though obvious contact may not have occurred. The clothing should be well cleaned (ordinary washing in soap and water should suffice) before re-use.

When materials are being handled, contact must be prevented by wearing appropriate protective clothing. Rubber gloves should be in routine use, however, great care must be exercised to prevent the contamination of the inside of the gloves. The preferred face protection is a full face shield or chemical worker's goggles.

If isocyanates are swallowed, induce vomiting by tickling the back of the throat with the finger or by giving an emetic such as ipecac syrup. A physician should be called immediately.

Ventilation

The primary safety precaution for urethane materials is good ventilation in all areas where they are handled. In enclosed areas a hood-type ventilation unit should be provided to remove vapors that are emitted during the foaming operation. The type of hood used will depend upon the particular application, and the ventilating system should be designed by experienced engineers, emphasizing the following points:

A. The processing should be enclosed as much as possible.
B. Baffles and side shields should be used to the fullest possible extent.
C. The velocity of air at the point of vapor dispersal should be sufficiently high to remove isocyanate vapors which are heavier than air and tend to settle downward.
D. Advantage should be taken of air movement due to thermocurrents.
E. Vapors should not be drawn past the operator's face.
F. The hood should be positioned so it does not interfere with the operator's work.
G. The level of isocyanate vapor in air should be monitored as prescribed by law

Polyols

As a large class many various hydroxyl-containing derivatives, the following properties can be applied in general. In cases of specific question, one should determine the actual material and its toxicological properties.

Ordinary safety glasses will afford suitable protection during handling of these materials. If the eyes become contaminated, they should be flushed with copious amounts of flowing water. Medical attention should be obtained if irritation persists or develops after washing.

Tests conducted on rabbits have shown that most of the polyols cause no significant irritation of the skin, either intact or abraded. A few are capable of causing mild irritation on continuous contact with the skin. In these tests, there was no evidence that any of these materials were absorbed through the skin in acutely toxic amounts.

Catalysts

Organic-amines, metal salts, and organometallic materials are used as catalysts, and each of these materials is to be considered from fairly toxic to very toxic as an individual chemical. Catalysts may be used in compounded systems in concentrations of about one per cent, effectively reducing hazard potential. Toxicity may be encountered through eye contact, skin contact, and lung irritation. Toxicity through ingestion is likely to be acute, particularly with regard to the metal-containing chemicals. These materials should be treated in a manner similar to the isocyanates, and a physician should be contacted immediately.

Cell Control Additives

Cell control additives present toxicological properties very similar ot the polyol class.

Blowing Agents

Water is used as an intermediate for density reduction and does not present toxicological hazard.

Fluorinated hydrocarbons, the most common blowing agents, have a low relative toxicity. A potential hazard may be present indirectly if the temperature of the fluorocarbon containing material is above 85-90 F. The vapors are heavier than air, therefore, if enough of the material is available there may be a lack of oxygen in the area. Fluorocarbons also present a potential pressure hazard in closed containers exposed to temperatures above 85 F. continuously.

Employee Safety Procedures

The training of employees is probably the most important safety measure a company can take. Although a company may provide protective equipment and expend a great effort to make sure that each process or operation is designed with safety in mind, an improperly trained worker can create an undue hazard. An effective employee education should include the following items:

A. The operator should be thoroughly familiar with the process with which he is concerned as well as the hazards that exist.
B. He should be instructed in proper handling procedures for the chemicals involved.
C. He should know exactly what action to take if fire, spills or other similar occurrences take place.
D. He should be trained in the proper use of fire fighting first aid, and rescue equipment. It is important that he know the exact locations of these items as well as the location of safety showers, eye baths, drinking fountains, fire alarms, and emergency shut-down switches.
E. He should know when personal protective equipment is to be used and how to use it effectively. It should be the responsibility of supervision to train each worker and, equally important, to instill an attitude of safety. The supervisor must procure the necessary safety equipment and make sure that it is maintained in good working order at all times. Operating procedures, including safety rules, should be posted in working areas where they may be read by employees.

Smoking

Smoking should not be permitted in areas around or adjacent to foam operations. Pyrolysis products (see overleaf) may be formed which are irritating to the lungs.

Personal Protective Equipment

Personal protective equipment should include safety glasses and respirator protective equipment. Respiratory protection is provided by self-contained breathing apparatus, or positive pressure air-masks or hoods.

Fire Fighting

Liquid Vultafoam® components do not constitute a fire hazard due to high flash points. However, they will burn if exposed to sufficient heat and oxygen. The low density foam produced from Vultafoam® components is flammable under certain conditions (see foregoing discussion). In any case it is important that proper fire fighting equipment be available in case of emergency. A water spray is effective for extinguishing fires covering large areas. Automatic sprinkler systems may be helpful in certain applications. Carbon dioxide or dry chemical extinguishers also are effective for small fires. The smoke and fumes resulting from a cellular plastic fire are given off in much larger volume in comparison to ordinary combustibles such as wood or paper, and may block vision or escape routes. Fire-fighters should wear self-contained breathing apparatus and normal protective equipment.

Handling and Storage

Vultafoam® Components are not classified as flammable or explosive chemicals. Shipments of materials are made according to current regulations of the Interstate Commerce Commission and the Department of Transportation. Vultafoam® is shipped in tank cars, tank trucks, and, most commonly, in 55-gallon steel, bung-head, non-returnable drums. Vultafroth® shipments are made in pressurized cylinders, predominately 1000-gallon capacity.

Vultafoam® liquids should be transferred from the drum by mechanical pumps because of the potential for drum rupture if air or nitrogen pressure is used. Careless handling could cause exposure of individuals to hazardous residues unless all the precautions for the original contents are observed. Exposure of these 'empties' to cutting or welding torches or to other spark or heat source could cause fire, violent explosion, or the release of toxic vapors.

We recommend that your personnel and all other recipients of used drums be warned that emptied containers retain product residue and vapors, that there may be danger inherent in their misuse or reuse, and that the disposition of such containers through channels other than a qualified drum reconditioner could be dangerous. We also recommend that your personnel be given the following specific warning: "Do not cut or weld on or near full or emptied drums." All safety precautions should be observed until the container has been cleaned, reconditioned or destroyed.

Spills

Spills of urethane components can be covered with an absorbent material such as sawdust, saturated with a solution of ammonia and isopropanol to react with the isocyanate. Treatment of spills in this manner must be accompanied by recommendations presented before, such as avoiding skin contact, eye protection and respiratory protection.

It is recommended that the container of the treated sawdust be kept near any area where liquid transfer may be made. Self-contained breathing apparatus should also be available, and ventilation is an essential for areas where spills are likely to occur.

Over-temperature Protection

Over-temperature protection devices are recommended for any equipment capable of heating urethane components. This protection can prevent loss of materials, and more importantly, can reduce the potential hazard associated with "burning" of the isocyanate component. An audible alarm should be used to make personnel aware of a potential problem; automatic disengagement of heating equipment should also take place. Since most heating is done electrically, a simple breaking of a circuit is usually sufficient. (A circuit breaker of an auto-reset nature must not be used.)

When over-temperature devices are actuated, personnel familiar with the total operation should ascertain the cause of the action before restart. Careful observation of temperature conditions generally will indicate the source of failure.

Over-temperature protection devices can usually be set at 20-30 F above recommended operating temperatures, but in no case to exceed 150 F. If the equipment is to be left unattended for longer periods of time, it is recommended that the over-temperature level be set at 90-100 F, or that the equipment be completely turned off.

Why Over-Temperature Controls Should Be Used

Part A—Isocyanate Containing Component

There is a potential for "fire" in isocyanate containing materials. This "fire" is of a heavy smoke, smouldering nature, seldom accompanied by visible flame, and is characteristically produced by run-away temperature.

Effective control of the "fire" requires temperature reduction. Dry ice and/or water can be used, with the dry ice preferred. Water reacts with the isocyanate and volume expansion (foaming) may occur. Water addition must be done carefully and not in closed containers where excessive pressure (caused by carbon dioxide evolution) might result.

Protection for the fire-fighters is mandatory; the smoke and gases are toxic. Potential products include monomeric isocyanate, phosgene, carbon monoxide, carbon dioxide, and phosphorous compounds. Full air supplied face masks or hoods must be used to prevent inhalation of the gases; eye and skin protection must also be used.

Part B—Resin/Blowing Agent Component

Over-temperature protection for the Part B is necessary to prevent pressure development. No significant "fire" hazard exists, but chemical breakdown has been observed. Pressure developments obviously may result in an explosive rupture of equipment reservoirs or piping lines.

Printed 9/84

General Latex and Chemical Corporation
675 Massachusetts Avenue 617-576-8000

General Latex and Chemical Corporation
High Street, North Billerica, Mass. 01862 617-663-3485

General Latex and Chemical Corporation
P. O. Box 748, Cucamonga, Calif. 91730 714-987-6261

General Latex and Chemical Corporation (Of Ohio)
P. O. Box 498, Ashland, Ohio 44805 419-289-2727

General Latex and Chemical Corporation (Of N. C.)
P. O. Box 5487, Charlotte, N. C. 28206 704-376-3582

General Latex and Chemical Corporation (Of Georgia)
P. O. Box 709, Dalton, Georgia 30720 404-278-3622

General Latex Ltd.
20 Ibsen Place, Candiac, Quebec, Canada 514-659-1903

General Latex and Chemicals (Canada) Ltd.
68 Eastern Avenue, E., Brampton, Ontario, Canada 416-451-5360

4.05 Particle Size -- If the listed substance exists in particulate form during any of the following activities, indicate for each applicable physical state the size and the percentage distribution of the listed substance by activity. Do not include particles ≥10 microns in diameter. Measure the physical state and particle sizes for importing and processing activities at the time you import or begin to process the listed substance. Measure the physical state and particle sizes for manufacturing storage, disposal and transport activities using the final state of the product.

CBI

[ ]

Physical State		Manufacture	Import	Process	Store	Dispose	Transport
Dust	<1 micron	NA	NA	NA	NA	NA	NA
	1 to <5 microns	NA	NA	NA	NA	NA	NA
	5 to <10 microns	NA	NA	NA	NA	NA	NA
Powder	<1 micron	NA	NA	NA	NA	NA	NA
	1 to <5 microns	NA	NA	NA	NA	NA	NA
	5 to <10 microns	NA	NA	NA	NA	NA	NA
Fiber	<1 micron	NA	NA	NA	NA	NA	NA
	1 to <5 microns	NA	NA	NA	NA	NA	NA
	5 to <10 microns	NA	NA	NA	NA	NA	NA
Aerosol	<1 micron	NA	NA	NA	NA	NA	NA
	1 to <5 microns	NA	NA	NA	NA	NA	NA
	5 to <10 microns	NA	NA	NA	NA	NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

SECTION 5 ENVIRONMENTAL FATE

PART A RATE CONSTANTS AND TRANSFORMATION PRODUCTS

5.01 Indicate the rate constants for the following transformation processes.

a. Photolysis:

Absorption spectrum coefficient (peak) .... UK (1/M cm) at UK nm

Reaction quantum yield, ϕ ..... UK at UK nm

Direct photolysis rate constant, k_p, at ... UK l/hr UK latitude

b. Oxidation constants at 25°C:

For $^1O_2$ (singlet oxygen), k_{ox} ..... UK 1/M hr

For RO_2 (peroxy radical), k_{ox} ..... UK 1/M hr

c. Five-day biochemical oxygen demand, BOD_5 ... UK mg/l

d. Biotransformation rate constant:

For bacterial transformation in water, k_b... UK 1/hr

Specify culture ..... UK

e. Hydrolysis rate constants:

For base-promoted process, k_B ..... UK 1/M hr

For acid-promoted process, k_A ..... UK 1/M hr

For neutral process, k_N ..... UK 1/hr

f. Chemical reduction rate (specify conditions) UK

g. Other (such as spontaneous degradation) ... UK

[ ] Mark (X) this box if you attach a continuation sheet.

PART B PARTITION COEFFICIENTS

5.02 a. Specify the half-life of the listed substance in the following media.

Media	Half-life (specify units)
Groundwater	UK
Atmosphere	UK
Surface water	UK
Soil	UK

b. Identify the listed substance's known transformation products that have a half-life greater than 24 hours.

CAS No.	Name	Half-life (specify units)		Media
UK	UK	UK	in	UK
UK	UK	UK	in	UK
UK	UK	UK	in	UK
UK	UK	UK	in	UK

5.03 Specify the octanol-water partition coefficient, K_{ow} ... UK at 25°C

Method of calculation or determination ..... UK

5.04 Specify the soil-water partition coefficient, K_d ..... UK at 25°C

Soil type ..... UK

5.05 Specify the organic carbon-water partition coefficient, K_{oc} ..... UK at 25°C

5.06 Specify the Henry's Law Constant, H ..... UK atm-m^3/mole

[ ] Mark (X) this box if you attach a continuation sheet.

5.07 List the bioconcentration factor (BCF) of the listed substance, the species for which it was determined, and the type of test used in deriving the BCF.

Bioconcentration Factor	Species	Test[1]
UK	UK	UK
UK	UK	UK
UK	UK	UK

[1]Use the following codes to designate the type of test:

F = Flowthrough
S = Static

[ ] Mark (X) this box if you attach a continuation sheet.

6.04 CBI [ ] For each market listed below, state the quantity sold and the total sales value of the listed substance sold or transferred in bulk during the reporting year. Response not required for TDI.

Market	Quantity Sold or Transferred (kg/yr)	Total Sales Value ($/yr)
Retail sales		
Distribution -- Wholesalers		
Distribution -- Retailers		
Intra-company transfer		
Repackagers		
Mixture producers		
Article producers		
Other chemical manufacturers or processors		
Exporters		
Other (specify)		

6.05 CBI [ ] Substitutes -- List all known commercially feasible substitutes that you know exist for the listed substance and state the cost of each substitute. A commercially feasible substitute is one which is economically and technologically feasible to use in your current operation, and which results in a final product with comparable performance in its end uses.

Substitute	Cost ($/kg)
NONE	NA
NA	NA
NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

SECTION 7 MANUFACTURING AND PROCESSING INFORMATION

General Instructions:

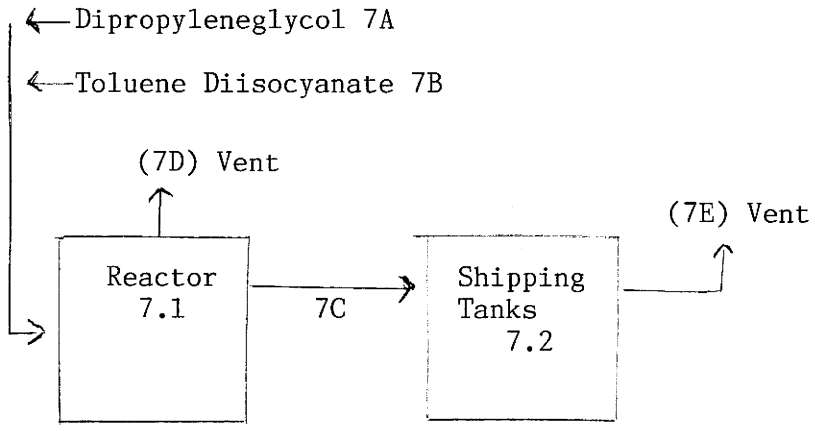
For questions 7.04-7.06, provide a separate response for each process block flow diagram provided in questions 7.01, 7.02, and 7.03. Identify the process type from which the information is extracted.

PART A MANUFACTURING AND PROCESSING PROCESS TYPE DESCRIPTION

7.01 In accordance with the instructions, provide a process block flow diagram showing the major (greatest volume) process type involving the listed substance.

CBI

[ ] Process type ..... TDI Prepolymerization Process

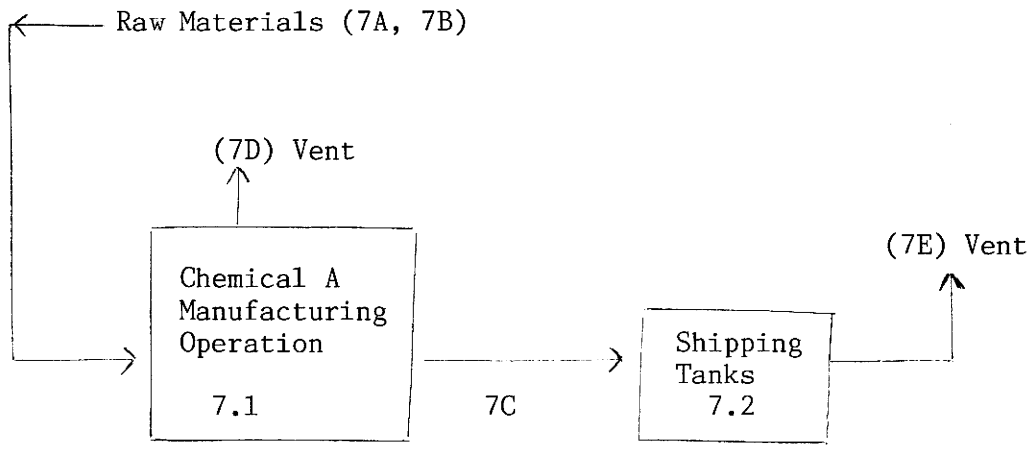


[ ] Mark (X) this box if you attach a continuation sheet.

7.03 In accordance with the instructions, provide a process block flow diagram showing all process emission streams and emission points that contain the listed substance and which, if combined, would total at least 90 percent of all facility emissions if not treated before emission into the environment. If all such emissions are released from one process type, provide a process block flow diagram using the instructions for question 7.01. If all such emissions are released from more than one process type, provide a process block flow diagram showing each process type as a separate block.

CBI

[ ] Process type ..... TDI Prepolymerization Process



[ ] Mark (X) this box if you attach a continuation sheet.

7.04 Describe the typical equipment types for each unit operation identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

[ ] Process type ..... _____

Unit Operation ID Number	Typical Equipment Type	Operating Temperature Range (°C)	Operating Pressure Range (mm Hg)	Vessel Composition
7.1	Reactor	57 - 63°C	Atmospheric	Glass Lined Steel
7.2	Shipping Container	Ambient	776	Steel

[ ] Mark (X) this box if you attach a continuation sheet.

7.05 Describe each process stream identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type.

CBI

[ ] Process type ..... _____

Process Stream ID Code	Process Stream Description	Physical State[1]	Stream Flow (kg/yr)
7A	Dipropylene Glycol	OL	8,657 Kg/Yr
7B	TDI	OL	42,266 Kg/Yr
7C	Prepolymer	OL	50,923 Kg/Yr

[1]Use the following codes to designate the physical state for each process stream:

GC = Gas (condensible at ambient temperature and pressure)
GU = Gas (uncondensible at ambient temperature and pressure)
SO = Solid
SY = Sludge or slurry
AL = Aqueous liquid
OL = Organic liquid
IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

[ ] Mark (X) this box if you attach a continuation sheet.

7.06 Characterize each process stream identified in your process block flow diagram(s). If a process block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the CBI instructions for further explanation and an example.)

[ ] Process type ..... _____

a. Process Stream ID Code	b. Known Compounds[1]	c. Concentrations[2,3] (% or ppm)	d. Other Expected Compounds	e. Estimated Concentrations (% or ppm)
7A	Dipropylene Glycol	100%	NA	NA
	NA	NA	NA	NA
	NA	NA	NA	NA
	NA	NA	NA	NA
7B	Toluene Diisocyanate	99.99%	Hydrolyzable Chloride	0.01%
	NA	NA	NA	NA
	NA	NA	NA	NA
	NA	NA	NA	NA
7C	Toluene Diisocyanate	100%(E)(W)	Toluene Diisocyanate	5ppm (E)(V)
	Dipropyleneglycol Prepolymer	NA	NA	NA
	NA	NA	NA	NA
	NA	NA	NA	NA

7.06 continued below

7D	Air	99.99% (E)(V)	NONE	NA
	Toluene Diisocyanate	5ppm (E)(V)	NONE	NA
7E	Air	99.99% (E)(V)	NONE	NA
	Toluene Diisocyanate	5ppm (E)(V)	NONE	NA

[ ] Mark (X) this box if you attach a continuation sheet.

7.06 (continued)

[1]For each additive package introduced into a process stream, specify the compounds that are present in each additive package, and the concentration of each component. Assign an additive package number to each additive package and list this number in column b. (Refer to the instructions for further explanation and an example. Refer to the glossary for the definition of additive package.)

Additive Package Number	Components of Additive Package	Concentrations (% or ppm)
1	NA	NA
	NA	NA
	NA	NA
2	NA	NA
	NA	NA
	NA	NA
3	NA	NA
	NA	NA
	NA	NA
4	NA	NA
	NA	NA
	NA	NA
5	NA	NA
	NA	NA
	NA	NA

[2]Use the following codes to designate how the concentration was determined:

A = Analytical result
E = Engineering judgement/calculation

[3]Use the following codes to designate how the concentration was measured:

V = Volume
W = Weight

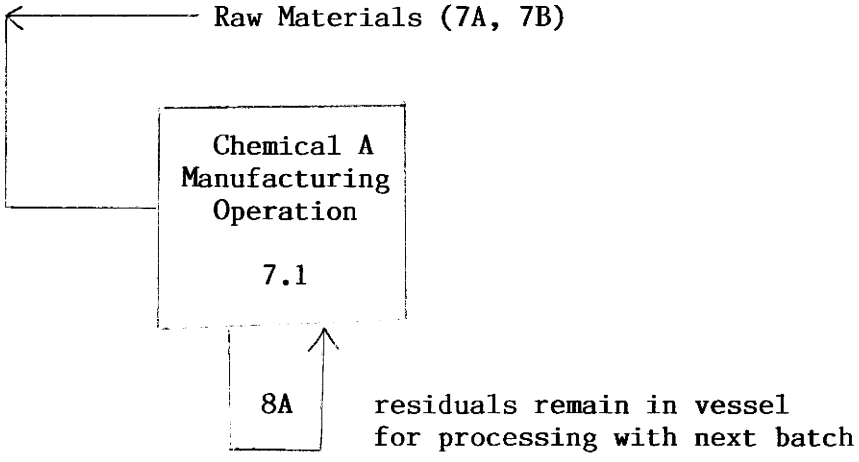
[ ] Mark (X) this box if you attach a continuation sheet.

PART A RESIDUAL TREATMENT PROCESS DESCRIPTION

8.01 In accordance with the instructions, provide a residual treatment block flow diagram which describes the treatment process used for residuals identified in question 7.01.

CBI

[ ] Process type ..... TDI Prepolymerization Process



[ ] Mark (X) this box if you attach a continuation sheet.

PART B RESIDUAL GENERATION AND CHARACTERIZATION

8.05 Characterize each process stream identified in your residual treatment block flow diagram(s). If a residual treatment block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the instructions for further explanation and an example.)

CBI

[ ] Process type ..... TDI Prepolymerization Process

a. Stream ID Code	b. Type of Hazardous Waste[1]	c. Physical State of Residual[2]	d. Known Compounds[3]	e. Concentrations (% or ppm)[4,5,6]	f. Other Expected Compounds	g. Estimated Concentrations (% or ppm)
8A	NA	OL	TDI,DPG pre-polymer	100% (E)(W)	None	NA
		NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA
		NA	NA	NA	NA	NA

8.05 continued below

[ ] Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

[1]Use the following codes to designate the type of hazardous waste:

I = Ignitable
C = Corrosive
R = Reactive
E = EP toxic
T = Toxic
H = Acutely hazardous

[2]Use the following codes to designate the physical state of the residual:

GC = Gas (condensible at ambient temperature and pressure)
GU = Gas (uncondensible at ambient temperature and pressure)
SO = Solid
SY = Sludge or slurry
AL = Aqueous liquid
OL = Organic liquid
IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

8.05 continued below

[ ] Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

[3]For each additive package introduced into a process stream, specify the compounds that are present in each additive package, and the concentration of each component. Assign an additive package number to each additive package and list this number in column d. (Refer to the instructions for further explanation and an example. Refer to the glossary for the definition of additive package.)

Additive Package Number	Components of Additive Package	Concentrations (% or ppm)
1	NA	NA
	NA	NA
	NA	NA
2	NA	NA
	NA	NA
	NA	NA
3	NA	NA
	NA	NA
	NA	NA
4	NA	NA
	NA	NA
	NA	NA
5	NA	NA
	NA	NA
	NA	NA

[4]Use the following codes to designate how the concentration was determined:

A = Analytical result
E = Engineering judgement/calculation

8.05 continued below

[ ] Mark (X) this box if you attach a continuation sheet.

8.05 (continued)

[5]Use the following codes to designate how the concentration was measured:

V = Volume
W = Weight

[6]Specify the analytical test methods used and their detection limits in the table below. Assign a code to each test method used and list those codes in column e.

Code	Method	Detection Limit (± ug/l)
1	None	NA
2		
3		
4		
5		
6		

[ ] Mark (X) this box if you attach a continuation sheet.

8.06 Characterize each process stream identified in your residual treatment block flow diagram(s). If a residual treatment block flow diagram is provided for more than one process type, photocopy this question and complete it separately for each process type. (Refer to the instructions for further explanation and an example.)

CBI

[ ] Process type ..... TDI Prepolymerization Process

a. Stream ID Code	b. Waste Description Code[1]	c. Management Method Code[2]	d. Residual Quantities (kg/yr)	e. Management of Residual (%) On-Site	e. Management of Residual (%) Off-Site	f. Costs for Off-Site Management (per kg)	g. Changes in Management Methods
8A	NA	2TR	491	100	0	0	none

[1]Use the codes provided in Exhibit 8-1 to designate the waste descriptions

[2]Use the codes provided in Exhibit 8-2 to designate the management methods

[ ] Mark (X) this box if you attach a continuation sheet.

8.22 Describe the combustion chamber design parameters for each of the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

[ ]

Incinerator	Combustion Chamber Temperature (°C)		Location of Temperature Monitor		Residence Time In Combustion Chamber (seconds)	
	Primary	Secondary	Primary	Secondary	Primary	Secondary
1	Response not required for TDI					
2						
3						

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No 2

8.23 Complete the following table for the three largest (by capacity) incinerators that are used on-site to burn the residuals identified in your process block or residual treatment block flow diagram(s).

CBI

[ ]

Incinerator	Air Pollution Control Device[1]	Types of Emissions Data Available
1	NA	NA
2	NA	NA
3	NA	NA

Indicate if Office of Solid Waste survey has been submitted in lieu of response by circling the appropriate response.

Yes 1

No ..... (2)

[1]Use the following codes to designate the air pollution control device:

S = Scrubber (include type of scrubber in parenthesis)
E = Electrostatic precipitator
O = Other (specify) _____

[ ] Mark (X) this box if you attach a continuation sheet.

PART A EMPLOYMENT AND POTENTIAL EXPOSURE PROFILE

9.01 Mark (X) the appropriate column to indicate whether your company maintains records on the following data elements for hourly and salaried workers. Specify for each data element the year in which you began maintaining records and the number of years the CBI records for that data element are maintained. (Refer to the instructions for further explanation and an example.)

[ ]

Data Element	Data are Maintained for: Hourly Workers	Data are Maintained for: Salaried Workers	Year in Which Data Collection Began	Number of Years Records Are Maintained
Date of hire	X	X	1971	30
Age at hire	X	X	1971	30
Work history of individual before employment at your facility	X	X	1971	30
Sex	X	X	1971	30
Race	N	N	NA	NA
Job titles	X	X	1971	30
Start date for each job title	X	X	1971	30
End date for each job title	X	X	1971	30
Work area industrial hygiene monitoring data	X	X	1976	30
Personal employee monitoring data	NA	NA	NA	NA
Employee medical history	X	X	1971	30
Employee smoking history	X	X	1971	30
Accident history	X	X	1971	30
Retirement date	X	X	1971	30
Termination date	X	X	1971	30
Vital status of retirees	N	N	NA	NA
Cause of death data	N	N	NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

9.02 In accordance with the instructions, complete the following table for each activity in which you engage.

CBI

[ ]

a. Activity	b. Process Category	c. Yearly Quantity (kg)	d. Total Workers	e. Total Worker-Hours
Manufacture of the listed substance	Enclosed	NA	NA	NA
	Controlled Release	NA	NA	NA
	Open	NA	NA	NA
On-site use as reactant	Enclosed	42266	3	525
	Controlled Release	NA	NA	NA
	Open	NA	NA	NA
On-site use as nonreactant	Enclosed	NA	NA	NA
	Controlled Release	NA	NA	NA
	Open	NA	NA	NA
On-site preparation of products	Enclosed	NA	NA	NA
	Controlled Release	NA	NA	NA
	Open	NA	NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

9.03 Provide a descriptive job title for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance.

CBI

[ ]

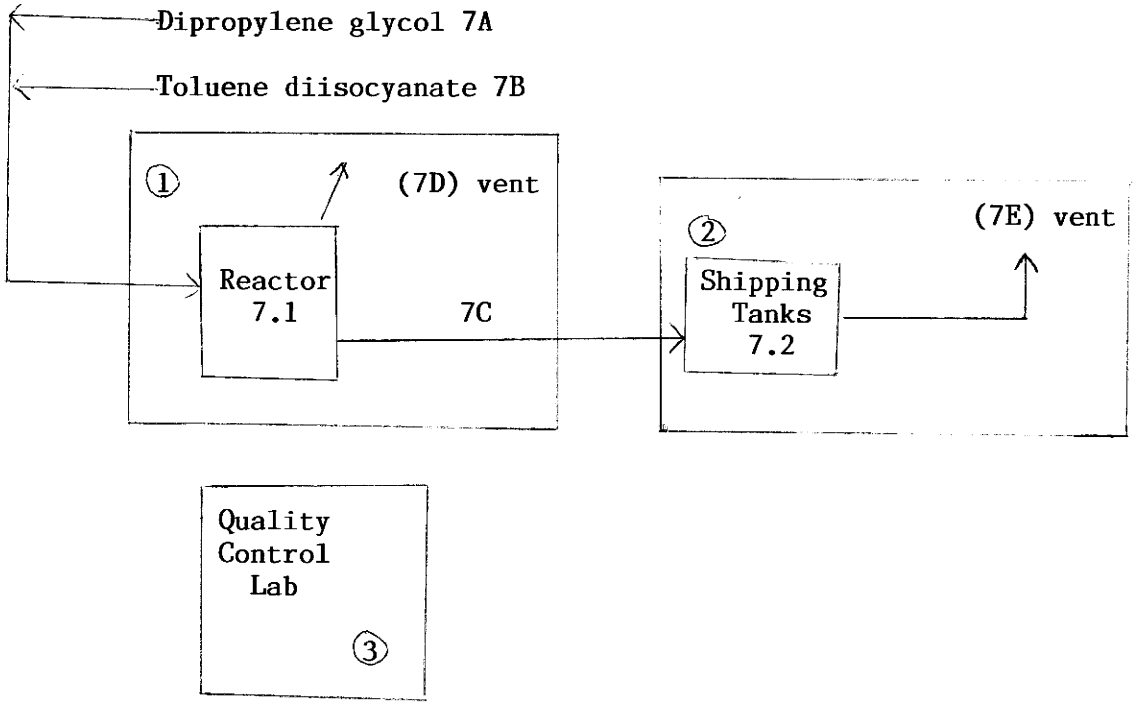
Labor Category	Descriptive Job Title
A	Lead Man
B	Compounder
C	Quality Control Technician
D	
E	
F	
G	
H	
I	
J	

[ ] Mark (X) this box if you attach a continuation sheet.

9.04 **In accordance with the instructions, provide your process block flow diagram(s) and indicate associated work areas.**

CBI

[ ] **Process type .....** TDI Prepolymerization Process



[ ] **Mark (X) this box if you attach a continuation sheet.**

9.05 Describe the various work area(s) shown in question 9.04 that encompass workers who may potentially come in contact with or be exposed to the listed substance. Add any additional areas not shown in the process block flow diagram in question 7.01 or 7.02. Photocopy this question and complete it separately for each process type.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Work Area ID	Description of Work Areas and Worker Activities
1	Platform at top of reactor. Charge reactor.
2	Tank on floor attached by hose to reactor. Turning valves(workers watch level guage).
3	Laboratory with test equipment. (Worker weighs and titrates for analytical results.)
4	
5	
6	
7	
8	
9	
10	

[ ] Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Work area 1

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance[1]	Average Length of Exposure Per Day[2]	Number of Days per Year Exposed
A	1	Inhalation	GU	B	21
B	1	Inhalation	GU	B	21

[1]Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensible at ambient temperature and pressure)
GU = Gas (uncondensible at ambient temperature and pressure; includes fumes, vapors, etc.)
SO = Solid
SY = Sludge or slurry
AL = Aqueous liquid
OL = Organic liquid
IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

[2]Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
B = Greater than 15 minutes, but not exceeding 1 hour
C = Greater than one hour, but not exceeding 2 hours
D = Greater than 2 hours, but not exceeding 4 hours
E = Greater than 4 hours, but not exceeding 8 hours
F = Greater than 8 hours

[ ] Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Work area 2

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance[1]	Average Length of Exposure Per Day[2]	Number of Days per Year Exposed
A	1	Inhalation	GU	D	21
B	1	Inhalation	GU	D	21

[1]Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensible at ambient temperature and pressure)
GU = Gas (uncondensible at ambient temperature and pressure; includes fumes, vapors, etc.)
SO = Solid
SY = Sludge or slurry
AL = Aqueous liquid
OL = Organic liquid
IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

[2]Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
B = Greater than 15 minutes, but not exceeding 1 hour
C = Greater than one hour, but not exceeding 2 hours
D = Greater than 2 hours, but not exceeding 4 hours
E = Greater than 4 hours, but not exceeding 8 hours
F = Greater than 8 hours

[ ] Mark (X) this box if you attach a continuation sheet.

9.06 Complete the following table for each work area identified in question 9.05, and for each labor category at your facility that encompasses workers who may potentially come in contact with or be exposed to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Work area 3

Labor Category	Number of Workers Exposed	Mode of Exposure (e.g., direct skin contact)	Physical State of Listed Substance[1]	Average Length of Exposure Per Day[2]	Number of Days per Year Exposed
C	1	Inhalation	GU	B	21

[1]Use the following codes to designate the physical state of the listed substance at the point of exposure:

GC = Gas (condensible at ambient temperature and pressure)
GU = Gas (uncondensible at ambient temperature and pressure; includes fumes, vapors, etc.)
SO = Solid
SY = Sludge or slurry
AL = Aqueous liquid
OL = Organic liquid
IL = Immiscible liquid (specify phases, e.g., 90% water, 10% toluene)

[2]Use the following codes to designate average length of exposure per day:

A = 15 minutes or less
B = Greater than 15 minutes, but not exceeding 1 hour
C = Greater than one hour, but not exceeding 2 hours
D = Greater than 2 hours, but not exceeding 4 hours
E = Greater than 4 hours, but not exceeding 8 hours
F = Greater than 8 hours

[ ] Mark (X) this box if you attach a continuation sheet.

9.07 For each labor category represented in question 9.06, indicate the 8-hour Time Weighted Average (TWA) exposure levels and the 15-minute peak exposure levels. Photocopy this question and complete it separately for each process type and work area.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Work area 1

Labor Category	8-hour TWA Exposure Level (ppm, mg/m^3, other-specify)	15-Minute Peak Exposure Level (ppm, mg/m^3, other-specify)
A	NA	NA
B	NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

9.07 For each labor category represented in question 9.06, indicate the 8-hour Time Weighted Average (TWA) exposure levels and the 15-minute peak exposure levels. Photocopy this question and complete it separately for each process type and work area.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Work area 2

Labor Category	8-hour TWA Exposure Level (ppm, mg/m^3, other-specify)	15-Minute Peak Exposure Level (ppm, mg/m^3, other-specify)
A	NA	NA
B	NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

9.07 For each labor category represented in question 9.06, indicate the 8-hour Time Weighted Average (TWA) exposure levels and the 15-minute peak exposure levels. Photocopy this question and complete it separately for each process type and work area.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Work area 3

Labor Category	8-hour TWA Exposure Level (ppm, mg/m^3, other-specify)	15-Minute Peak Exposure Level (ppm, mg/m^3, other-specify)
C	NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

PART B WORK PLACE MONITORING PROGRAM

9.08 If you monitor worker exposure to the listed substance, complete the following table.

CBI

[ ]

Sample/Test	Work Area ID	Testing Frequency (per year)	Number of Samples (per test)	Who Samples[1]	Analyzed In-House (Y/N)	Number of Years Records Maintained
Personal breathing zone	NA	NA	NA	NA	NA	NA
General work area (air)	1-3	24	1	D	Y	30
Wipe samples	NA	NA	NA	NA	NA	NA
Adhesive patches	NA	NA	NA	NA	NA	NA
Blood samples	NA	NA	NA	NA	NA	NA
Urine samples	NA	NA	NA	NA	NA	NA
Respiratory samples	NA	NA	NA	NA	NA	NA
Allergy tests	NA	NA	NA	NA	NA	NA
Other (specify)						
NONE	NA	NA	NA	NA	NA	NA
Other (specify)						
NONE	NA	NA	NA	NA	NA	NA
Other (specify)						
NONE	NA	NA	NA	NA	NA	NA

[1]Use the following codes to designate who takes the monitoring samples:

A = Plant industrial hygienist
B = Insurance carrier
C = OSHA consultant
D = Other (specify) QC Technician

[ ] Mark (X) this box if you attach a continuation sheet.

9.09 CBI For each sample type identified in question 9.08, describe the type of sampling and analytical methodology used for each type of sample.

[ ] Sample Type	Sampling and Analytical Methodology
General Work Area	Use impinger to draw air through an acid absorbing solution. Analyzed chemically using four reagents.

9.10 If you conduct personal and/or ambient air monitoring for the listed substance, specify the following information for each equipment type used.

CBI

[ ] Equipment Type[1]	Detection Limit[2]	Manufacturer	Averaging Time (hr)	Model Number
H	0.005 ppm	MSA	1/3	S

[1]Use the following codes to designate personal air monitoring equipment types:

A = Passive dosimeter
B = Detector tube
C = Charcoal filtration tube with pump
D = Other (specify) _____

Use the following codes to designate ambient air monitoring equipment types:

E = Stationary monitors located within work area
F = Stationary monitors located within facility
G = Stationary monitors located at plant boundary
H = Mobile monitoring equipment (specify) MSA Monitaire Sampler
I = Other (specify) _____

[2]Use the following codes to designate detection limit units:

A = ppm
B = Fibers/cubic centimeter (f/cc)
C = Micrograms/cubic meter (μ/m^3)

[ ] Mark (X) this box if you attach a continuation sheet.

9.11 If you conduct routine medical tests for monitoring the health effects of exposure to the listed substance, specify the type and frequency of the tests.

CBI

[ ]	Test Description	Frequency (weekly, monthly, yearly, etc.)
	NA	NA
	NA	NA
	NA	NA
	NA	NA
	NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Work area 1

Engineering Controls	Used (Y/N)	Year Installed	Upgraded (Y/N)	Year Upgraded
Ventilation:				
Local exhaust	Y	1971	Y	1979
General dilution	N	NA	NA	NA
Other (specify)				
NA	N	NA	NA	NA
Vessel emission controls	N	NA	NA	NA
Mechanical loading or packaging equipment	N	NA	NA	NA
Other (specify)				
NA	N	NA	NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Work area 2

Engineering Controls	Used (Y/N)	Year Installed	Upgraded (Y/N)	Year Upgraded
Ventilation:				
Local exhaust	Y	1971	Y	1979
General dilution	N	NA	NA	NA
Other (specify)				
NA	N	NA	NA	NA
Vessel emission controls	N	NA	NA	NA
Mechanical loading or packaging equipment	N	NA	NA	NA
Other (specify)				
NA	N	NA	NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

PART C ENGINEERING CONTROLS

9.12 Describe the engineering controls that you use to reduce or eliminate worker exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Work area 3

Engineering Controls	Used (Y/N)	Year Installed	Upgraded (Y/N)	Year Upgraded
Ventilation:				
Local exhaust	Y	1971	Y	1979/1984
General dilution	N	NA	NA	NA
Other (specify)				
NA	N	NA	NA	NA
Vessel emission controls	NA	NA	NA	NA
Mechanical loading or packaging equipment	NA	NA	NA	NA
Other (specify)				
NA	NA	NA	NA	NA

[ ] Mark (X) this box if you attach a continuation sheet.

9.13 Describe all equipment or process modifications you have made within the 3 years prior to the reporting year that have resulted in a reduction of worker exposure to the listed substance. For each equipment or process modification described, state the percentage reduction in exposure that resulted. Photocopy this question and complete it separately for each process type and work area.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Work area 1

Equipment or Process Modification	Reduction in Worker Exposure Per Year (%)
None	N/A

[ ] Mark (X) this box if you attach a continuation sheet.

9.13 Describe all equipment or process modifications you have made within the 3 years prior to the reporting year that have resulted in a reduction of worker exposure to the listed substance. For each equipment or process modification described, state the percentage reduction in exposure that resulted. Photocopy this question and complete it separately for each process type and work area.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Work area 2

Equipment or Process Modification	Reduction in Worker Exposure Per Year (%)
None	N/A

[ ] Mark (X) this box if you attach a continuation sheet.

9.13 Describe all equipment or process modifications you have made within the 3 years prior to the reporting year that have resulted in a reduction of worker exposure to the listed substance. For each equipment or process modification described, state the percentage reduction in exposure that resulted. Photocopy this question and complete it separately for each process type and work area.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Work area 3

Equipment or Process Modification	Reduction in Worker Exposure Per Year (%)
Installed commercial fume hoods	0%

[ ] Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Work area 1

Equipment Types	Wear or Use (Y/N)
Respirators	Y
Safety goggles/glasses	Y
Face shields	Y
Coveralls	Y
Bib aprons	N
Chemical-resistant gloves	Y
Other (specify)	
N/A	N
N/A	N

[ ] Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Work area 2

Equipment Types	Wear or Use (Y/N)
Respirators	Y
Safety goggles/glasses	Y
Face shields	N
Coveralls	Y
Bib aprons	N
Chemical-resistant gloves	Y
Other (specify)	
N/A	N
N/A	N

[ ] Mark (X) this box if you attach a continuation sheet.

PART D PERSONAL PROTECTIVE AND SAFETY EQUIPMENT

9.14 Describe the personal protective and safety equipment that your workers wear or use in each work area in order to reduce or eliminate their exposure to the listed substance. Photocopy this question and complete it separately for each process type and work area.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Work area 3

Equipment Types	Wear or Use (Y/N)
Respirators	N
Safety goggles/glasses	Y
Face shields	N
Coveralls	N
Bib aprons	N
Chemical-resistant gloves	Y
Other (specify)	
Lab Coat	Y
N/A	N

[ ] Mark (X) this box if you attach a continuation sheet.

9.15 If workers use respirators when working with the listed substance, specify for each process type, the work areas where the respirators are used, the type of respirators used, the average usage, whether or not the respirators were fit tested, and the type and frequency of the fit tests. Photocopy this question and complete it separately for each process type.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Work Area	Respirator Type	Average Usage[1]	Fit Tested (Y/N)	Type of Fit Test[2]	Frequency of Fit Tests (per year)
1	Disposable negative pressure organic vapor	E	Y	QL	1
2	Disposable negative pressure organic vapor	E	Y	QL	1

[1]Use the following codes to designate average usage:

A = Daily
B = Weekly
C = Monthly
D = Once a year
E = Other (specify) Each day a batch is made.

[2]Use the following codes to designate the type of fit test:

QL = Qualitative
QT = Quantitative

[ ] Mark (X) this box if you attach a continuation sheet.

PART E WORK PRACTICES

9.19 Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this question and complete it separately for each process type and work area.

CBI

[ ]

Process type ..... TDI Prepolymerization Process

Work area 1

1. Placarding
2. Limited Access
3. Training Program
4. Periodic Work Area Monitoring

9.20 Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.

Process type ..... TDI Prepolymerization Process

Work area 1

Housekeeping Tasks	Less Than Once Per Day	1-2 Times Per Day	3-4 Times Per Day	More Than 4 Times Per Day
Sweeping	N/A	N/A	N/A	N/A
Vacuuming	N/A	N/A	N/A	N/A
Water flushing of floors	N/A	X	N/A	N/A
Other (specify)				
Decontaminate Solution	N/A	X	N/A	N/A

[ ] Mark (X) this box if you attach a continuation sheet.

PART E WORK PRACTICES

9.19 Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this CBI question and complete it separately for each process type and work area.

[ ]

Process type ..... TDI Prepolymerization Process

Work area 2

1. Placarding
2. Limited Access
3. Training Program
4. Periodic Work Area Monitoring

9.20 Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.

Process type ..... TDI Prepolymerization Process

Work area 2

Housekeeping Tasks	Less Than Once Per Day	1-2 Times Per Day	3-4 Times Per Day	More Than 4 Times Per Day
Sweeping	N/A	N/A	N/A	N/A
Vacuuming	N/A	N/A	N/A	N/A
Water flushing of floors	N/A	X	N/A	N/A
Other (specify)				
Decontaminate Solution	N/A	X	N/A	N/A

[ ] Mark (X) this box if you attach a continuation sheet.

PART E WORK PRACTICES

9.19 Describe all of the work practices and administrative controls used to reduce or eliminate worker exposure to the listed substance (e.g., restrict entrance only to authorized workers, mark areas with warning signs, insure worker detection and monitoring practices, provide worker training programs, etc.). Photocopy this CBI question and complete it separately for each process type and work area.

[ ]

Process type ..... TDI Prepolymerization Process

Work area 3

1. Limited Access
2. Training Program
3. Periodic Work Area Monitoring
4. Wear Respirator

9.20 Indicate (X) how often you perform each housekeeping task used to clean up routine leaks or spills of the listed substance. Photocopy this question and complete it separately for each process type and work area.

Process type ..... TDI Prepolymerization Process

Work area 3

Housekeeping Tasks	Less Than Once Per Day	1-2 Times Per Day	3-4 Times Per Day	More Than 4 Times Per Day
Sweeping	N/A	N/A	N/A	N/A
Vacuuming	N/A	N/A	N/A	N/A
Water flushing of floors	N/A	X	N/A	N/A
Other (specify)				
Decontaminate Solution	N/A	X	N/A	N/A

[ ] Mark (X) this box if you attach a continuation sheet.

9.21 Do you have a written medical action plan for responding to routine or emergency exposure to the listed substance?

Routine exposure

Response not required for TDI

Yes 1

No 2

Emergency exposure

Yes 1

No 2

If yes, where are copies of the plan maintained?

Routine exposure: _____

Emergency exposure: _____

9.22 Do you have a written leak and spill cleanup plan that addresses the listed substance? Circle the appropriate response.

Yes ..... (1)

No 2

If yes, where are copies of the plan maintained? Laboratory, Plant Manager's office/General Manager's office

Has this plan been coordinated with state or local government response organizations? Circle the appropriate response.

Yes ..... (1)

No 2

9.23 Who is responsible for monitoring worker safety at your facility? Circle the appropriate response.

Response not required for TDI

Plant safety specialist 1

Insurance carrier 2

OSHA consultant 3

Other (specify) _____ 4

[ ] Mark (X) this box if you attach a continuation sheet.

SECTION 10 ENVIRONMENTAL RELEASE

General Instructions:

Complete Part E (questions 10.23-10.35) for each non-routine release involving the listed substance that occurred during the reporting year. Report on all releases that are equal to or greater than the listed substance's reportable quantity value, RQ, unless the release is federally permitted as defined in 42 U.S.C. 9601, or is specifically excluded under the definition of release as defined in 40 CFR 302.3(22). Reportable quantities are codified in 40 CFR Part 302. If the listed substance is not a hazardous substance under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and, thus, does not have an RQ, then report releases that exceed 2,270 kg. If such a substance however, is designated as a CERCLA hazardous substance, then report those releases that are equal to or greater than the RQ. The facility may have answered these questions or similar questions under the Agency's Accidental Release Information Program and may already have this information readily available. Assign a number to each release and use this number throughout this part to identify the release. Releases over more than a 24-hour period are not single releases, i.e., the release of a chemical substance equal to or greater than an RQ must be reported as a separate release for each 24-hour period the release exceeds the RQ.

For questions 10.25-10.35, answer the questions for each release identified in question 10.23. Photocopy these questions and complete them separately for each release.

PART A GENERAL INFORMATION

10.01 Where is your facility located? Circle all appropriate responses.

CBI

[ ] Industrial area ..... (1)

Urban area 2

Residential area 3

Agricultural area 4

Rural area 5

Adjacent to a park or a recreational area 6

Within 1 mile of a navigable waterway 7

Within 1 mile of a school, university, hospital, or nursing home facility 8

Within 1 mile of a non-navigable waterway 9

Other (specify) _____ 10

[ ] Mark (X) this box if you attach a continuation sheet.

10.02 Specify the exact location of your facility (from central point where process unit is located) in terms of latitude and longitude or Universal Transverse Mercader (UTM) coordinates.

Latitude ..... 034 ° 05 ' 44 "

Longitude ..... 117 ° 33 ' 30 "

UTM coordinates ..... Zone N/A , Northing N/A , Easting N/A

10.03 If you monitor meteorological conditions in the vicinity of your facility, provide the following information. Response not required for TDI

Average annual precipitation ..... _____ inches/year

Predominant wind direction ..... _____

10.04 Indicate the depth to groundwater below your facility. Response not required for TDI

Depth to groundwater ..... _____ meters

10.05 For each on-site activity listed, indicate (Y/N/NA) all routine releases of the listed substance to the environment. (Refer to the instructions for a definition of Y, N, and NA.)

CBI

[ ]

On-Site Activity	Environmental Release		
	Air	Water	Land
Manufacturing	N/A	N/A	N/A
Importing	N/A	N/A	N/A
Processing	Y	N	N
Otherwise used	N/A	N/A	N/A
Product or residual storage	N/A	N/A	N/A
Disposal	N/A	N/A	N/A
Transport	N/A	N/A	N/A

[ ] Mark (X) this box if you attach a continuation sheet.

10.06 Provide the following information for the listed substance and specify the level of precision for each item. (Refer to the instructions for further explanation and an example.)

CBI

[ ]

Quantity discharged to the air	0.0063*	kg/yr ±	UK %
Quantity discharged in wastewaters	None	kg/yr ±	N/A %
Quantity managed as other waste in on-site treatment, storage, or disposal units	None	kg/yr ±	N/A %
Quantity managed as other waste in off-site treatment, storage, or disposal units	None	kg/yr ±	N/A %

*Estimate based on manufacturer's literature

[ ] Mark (X) this box if you attach a continuation sheet.

10.08 Describe the control technologies used to minimize release of the listed substance for each process stream containing the listed substance as identified in your process block or residual treatment block flow diagram(s). Photocopy this question and complete it separately for each process type.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Stream ID Code	Control Technology	Percent Efficiency
7B	Closed System	UK
7C	Closed System	UK

[ ] Mark (X) this box if you attach a continuation sheet.

PART B RELEASE TO AIR

10.09 Point Source Emissions -- Identify each emission point source containing the listed substance in terms of a Stream ID Code as identified in your process block or residual treatment block flow diagram(s), and provide a description of each point source. Do not include raw material and product storage vents, or fugitive emission sources (e.g., equipment leaks). Photocopy this question and complete it separately for each process type.

CBI

[ ]

Process type ..... TDI Prepolymerization Process

Point Source ID Code	Description of Emission Point Source
7D	Release of air pressure after unloading reactor
7E	Displacement of air during filling of shipping containers

[ ] Mark (X) this box if you attach a continuation sheet.

[ ] Mark (X) this box if you attach a continuation sheet.

10.10 Emission Characteristics - - Characterize the emissions for each Point Source ID Code identified in question 10.09 by completing the following table.

CBI

[ ]

Point Source ID Code	Physical State[1]	Average Emissions (kg/day)	Frequency[2] (days/yr)	Duration[3] (min/day)	Average Emission Factor[4]	Maximum Emission Rate (kg/min)	Maximum Emission Rate Frequency (events/yr)	Maximum Emission Rate Duration (min/event)
7D	V	0.0003	21	5	UK	UK	21	5
7E	V	0.0001	21	120	UK	UK	21	120

[1]Use the following codes to designate physical state at the point of release:
G = Gas; V = Vapor; P = Particulate; A = Aerosol; 0 = Other (specify) _____

[2]Frequency of emission at any level of emission

[3]Duration of emission at any level of emission

[4]Average Emission Factor — Provide estimated (± 25 percent) emission factor (kg of emission per kg of production of listed substance)

10.11 Stack Parameters -- Identify the stack parameters for each Point Source ID Code identified in question 10.09 by completing the following table.

CBI

[ ]

Point Source ID Code	Stack Height(m)	Stack Inner Diameter (at outlet) (m)	Exhaust Temperature (°C)	Emission Exit Velocity (m/sec)	Building Height(m)[1]	Building Width(m)[2]	Vent Type[3]
7D	N/A	N/A	37°C	UK	7.625	30.5	V
7E	N/A	N/A	37°C	UK	7.625	30.5	H

[1]Height of attached or adjacent building

[2]Width of attached or adjacent building

[3]Use the following codes to designate vent type:

H = Horizontal
V = Vertical

[ ] Mark (X) this box if you attach a continuation sheet.

10.12 If the listed substance is emitted in particulate form, indicate the particle size distribution for each Point Source ID Code identified in question 10.09. Photocopy this question and complete it separately for each emission point source.

CBI

[ ]

Point source ID code ..... N/A

Size Range (microns)	Mass Fraction (% ± % precision)
< 1	N/A
≥ 1 to < 10	N/A
≥ 10 to < 30	N/A
≥ 30 to < 50	N/A
≥ 50 to < 100	N/A
≥ 100 to < 500	N/A
≥ 500	N/A

Total = 100%

[ ] Mark (X) this box if you attach a continuation sheet.

PART C FUGITIVE EMISSIONS

10.13 Equipment Leaks -- Complete the following table by providing the number of equipment types listed which are exposed to the listed substance and which are in service according to the specified weight percent of the listed substance passing through the component. Do this for each process type identified in your process block or residual treatment block flow diagram(s). Do not include equipment types that are not exposed to the listed substance. If this is a batch or intermittently operated process, give an overall percentage of time per year that the process type is exposed to the listed substance. Photocopy this question and complete it separately for each process type.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Percentage of time per year that the listed substance is exposed to this process type ..... 5.75 %

Equipment Type	Number of Components in Service by Weight Percent of Listed Substance in Process Stream					
	Less than 5%	5-10%	11-25%	26-75%	76-99%	Greater than 99%
Pump seals[1]						
Packed	N/A	N/A	N/A	N/A	N/A	N/A
Mechanical	N/A	N/A	N/A	N/A	N/A	N/A
Double mechanical[2]	N/A	N/A	N/A	N/A	N/A	N/A
Compressor seals[1]	N/A	N/A	N/A	N/A	N/A	N/A
Flanges	N/A	N/A	N/A	N/A	N/A	1
Valves						
Gas[3]	N/A	N/A	N/A	N/A	N/A	N/A
Liquid	N/A	N/A	N/A	N/A	N/A	5
Pressure relief devices[4] (Gas or vapor only)	N/A	N/A	N/A	N/A	N/A	2
Sample connections						
Gas	N/A	N/A	N/A	N/A	N/A	N/A
Liquid	N/A	N/A	N/A	N/A	N/A	N/A
Open-ended lines[5] (e.g., purge, vent)						
Gas	N/A	N/A	N/A	N/A	N/A	1
Liquid	N/A	N/A	N/A	N/A	N/A	2

[1]List the number of pump and compressor seals, rather than the number of pumps or compressors

10.13 continued on next page

[ ] Mark (X) this box if you attach a continuation sheet.

10.13 (continued)

[2]If double mechanical seals are operated with the barrier (B) fluid at a pressure greater than the pump stuffing box pressure and/or equipped with a sensor (S) that will detect failure of the seal system, the barrier fluid system, or both, indicate with a "B" and/or an "S", respectively

[3]Conditions existing in the valve during normal operation

[4]Report all pressure relief devices in service, including those equipped with control devices

[5]Lines closed during normal operation that would be used during maintenance operations

10.14 Pressure Relief Devices with Controls -- Complete the following table for those pressure relief devices identified in 10.13 to indicate which pressure relief devices in service are controlled. If a pressure relief device is not controlled, enter "None" under column c.

CBI

[ ]

a. Number of Pressure Relief Devices	b. Percent Chemical in Vessel[1]	c. Control Device	d. Estimated Control Efficiency[2]
2	>99%	None	UK

[1]Refer to the table in question 10.13 and record the percent range given under the heading entitled "Number of Components in Service by Weight Percent of Listed Substance" (e.g., <5%, 5-10%, 11-25%, etc.)

[2]The EPA assigns a control efficiency of 100 percent for equipment leaks controlled with rupture discs under normal operating conditions. The EPA assigns a control efficiency of 98 percent for emissions routed to a flare under normal operating conditions

[ ] Mark (X) this box if you attach a continuation sheet.

10.15 Equipment Leak Detection -- If a formal leak detection and repair program is in place, complete the following table regarding those leak detection and repair procedures. Photocopy this question and complete it separately for each process type.

CBI

[ ] Process type ..... TDI Prepolymerization Process

Equipment Type	Leak Detection Concentration (ppm or mg/m^3) Measured at ____ Inches from Source	Detection Device[1]	Frequency of Leak Detection (per year)	Repairs Initiated (days after detection)	Repairs Completed (days after initiated)
Pump seals					
Packed	None	N/A	N/A	N/A	N/A
Mechanical	None	N/A	N/A	N/A	N/A
Double mechanical	None	N/A	N/A	N/A	N/A
Compressor seals	None	N/A	N/A	N/A	N/A
Flanges	None	N/A	N/A	N/A	N/A
Valves					
Gas	None	N/A	N/A	N/A	N/A
Liquid	None	N/A	N/A	N/A	N/A
Pressure relief devices (gas or vapor only)	None	N/A	N/A	N/A	N/A
Sample connections					
Gas	None	N/A	N/A	N/A	N/A
Liquid	None	N/A	N/A	N/A	N/A
Open-ended lines					
Gas	None	N/A	N/A	N/A	N/A
Liquid	None	N/A	N/A	N/A	N/A

[1]Use the following codes to designate detection device:

POVA = Portable organic vapor analyzer
FPM = Fixed point monitoring
O = Other (specify) _____

[ ] Mark (X) this box if you attach a continuation sheet.

10.16 Raw Material, Intermediate and Product Storage Emissions - - Complete the following table by providing the information on each liquid raw material, intermediate, and product storage vessel containing the listed substance as identified in your process block or residual treatment block flow diagram(s).

CBI

[ ]

Vessel Type[1]	Floating Roof Seals[2]	Composition of Stored Materials[3]	Throughput (liters per year)	Vessel Filling Rate (gpm)	Vessel Filling Duration (min)	Vessel Inner Diameter (m)	Vessel Height (m)	Operating Vessel Volume (l)	Vessel Emission Controls[4]	Design Flow Rate[5]	Vent Diameter (cm)	Control Efficiency (%)	Basis for Estimate[6]
P 25psi	N/A	99.9(UK)	34,923	67	90	2.745	4.575	27,264	None	N/A	2.54	UK	N/A
P UK	N/A	100 (UK)	41,173	30	33 1/3	1.525	2.898	4,544	None	N/A	2.54	UK	N/A
P 250psi	N/A	100 (UK)	41,173	10	35	1.041	1.041	1,590	None	N/A	1.27	UK	N/A

[1]Use the following codes to designate vessel type:

F = Fixed roof
CIF = Contact internal floating roof
NCIF = Noncontact internal floating roof
EFR = External floating roof
P = Pressure vessel (indicate pressure rating)
H = Horizontal
U = Underground

[2]Use the following codes to designate floating roof seals:

MS1 = Mechanical shoe, primary
MS2 = Shoe-mounted secondary
MS2R = Rim-mounted, secondary
LM1 = Liquid-mounted resilient filled seal, primary
LM2 = Rim-mounted shield
LMW = Weather shield
VM1 = Vapor mounted resilient filled seal, primary
VM2 = Rim-mounted secondary
VMW = Weather shield

[3]Indicate weight percent of the listed substance. Include the total volatile organic content in parenthesis

[4]Other than floating roofs

[5]Gas/vapor flow rate the emission control device was designed to handle (specify flow rate units)

[6]Use the following codes to designate basis for estimate of control efficiency:

C = Calculations
S = Sampling

[ ] Mark (X) this box if you attach a continuation sheet.

PART E NON-ROUTINE RELEASES

10.23 Indicate the date and time when the release occurred and when the release ceased or was stopped. If there were more than six releases, attach a continuation sheet and list all releases.

Release	Date Started	Time (am/pm)	Date Stopped	Time (am/pm)
1	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A

10.24 Specify the weather conditions at the time of each release.
No response required for TDI

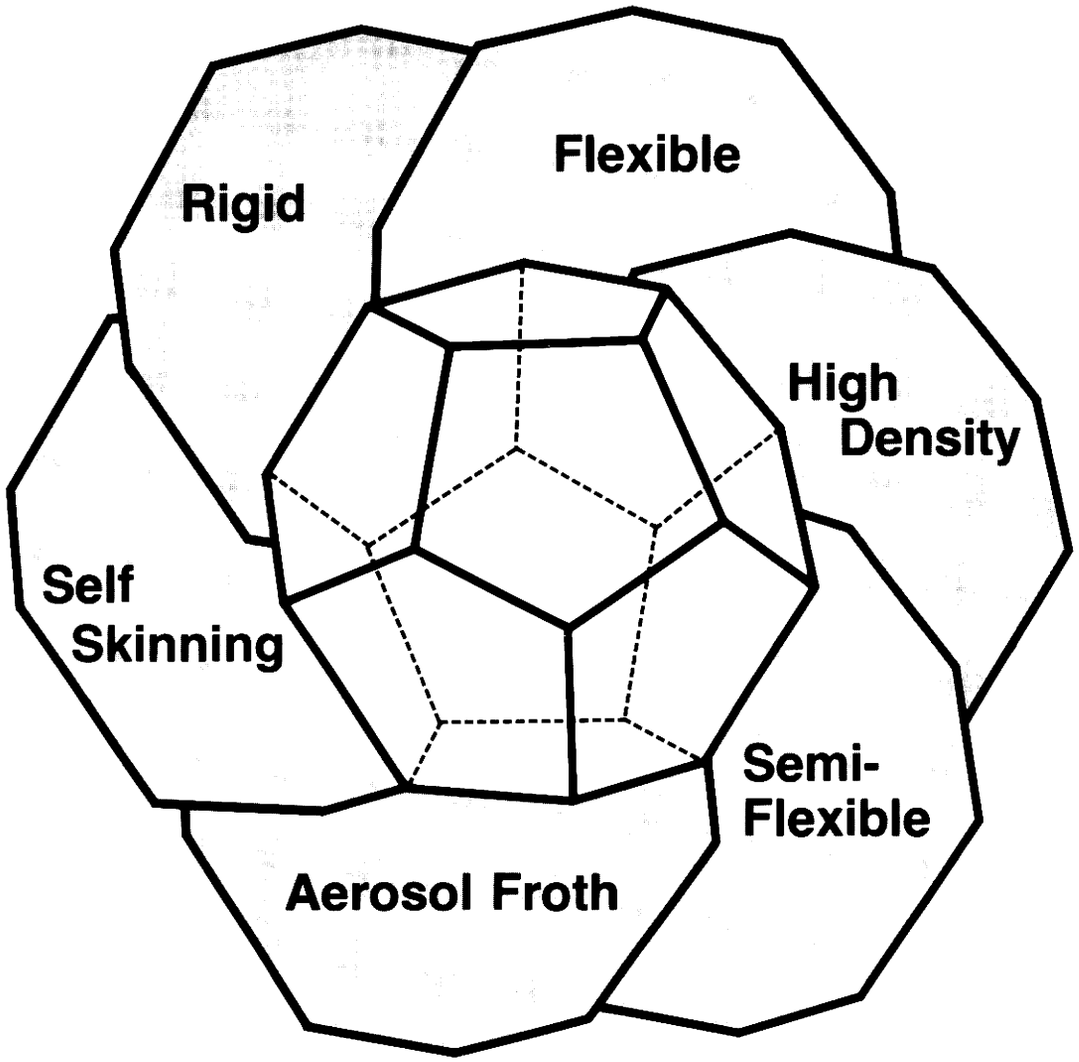
Release	Wind Speed (km/hr)	Wind Direction	Humidity (%)	Temperature (°C)	Precipitation (Y/N)
1					
2					
3					
4					
5					
6					

[ ] Mark (X) this box if you attach a continuation sheet.

Vultafoam Technical Bulletin

Subject

General Safety Information



Urethane Advantages

- **In Situ Application**
- **Insulating Efficiency**
- **Strength at Low Weight**
- **Good Adhesion**
  To Most Substrates
- **Bouyancy**
- **Moldability**
  Any Shape, Any Surface Detail
- **Machinability**
  With Normal Woodworking Tools
- **Ease of Fabrication**
  One Step, Usually
- **Resistant**
  To Most Solvents and Microorganisms

General Latex and Chemical Corporation

The information presented in this bulletin is intended as a summary of the large body of published information on safety and flammability to date, but must not be considered conclusive. Safety and flammability regulations are subject to constant review and change by local, state, and federal agencies.

Flammability Characteristics

Rigid urethane foam has achieved an extensive history in a variety of applications, including insulation (low density) and simulated wood (high density). For a variety of reasons, the performance of the urethane has been far superior to other more conventional materials.

One area of continuing concern has been fire potential, or flammability characteristics. Significant progress has been made in providing a degree of resistance to flame without the loss of physical properties. However, rigid urethane foams are combustibles like other materials such as cork, wood, or other organic foams.

Classification of the burning character of urethane foams and isocyanurate foams has been made according to test methods intended to simulate various sources of heat and/or flame. These testing procedures are considered small to medium scale in scope; the relationship between these laboratory tests and foam performance in actual fire conditions is not clearly established, and no inference should be made. All cellular plastics, regardless of the "degree of flame resistance", may exhibit rapid spread of surface flame when exposed to large heat or flame sources. Flame spread can be especially hazardous in enclosed spaces. Appropriate measures against fire sources (i.e., welding, flammable solvents, open flame, etc.) must be taken to insure adequate protection of the foam.

In many cases the flammability characteristic has been adequate to meet application situations. However, it is necessary to re-emphasize the conditions which can cause a significant fire hazard even with the best available fire retardant urethane foams. This potentially hazardous situation occurs when rigid foam is applied in a confined space with limited air circulation. In this type of application, it is mandatory to immediately install a suitable fire-protective covering over the foam. If suitable precautions are taken this flammability hazard can be minimized.

The fire-retardant feature of urethane foam is predicated upon the foam burning on the surface area forming a fire protective intumescent surface char. In this situation the original surface has been subjected to a brief, but intense flash fire with attendant heavy smoke and combustible gases. Under most conditions, this surface fire is of brief duration and is almost immediately extinguished upon the removal of the flame source. If this occurs in a confined area, however, sufficient accumulation of combustible gases can cause further fire or low-order explosions. If the structural design allows the temperature to rise to a sufficiently high level, destructive distillation of the foam will proceed to a point where the surface char does not provide sufficient protection, and foam will burn until entirely consumed.

Isocyanurate foams have inherently higher resistance to both temperature and flame, but may exhibit the same type of surface burning characteristics as urethane foams.

It is evident that these conditions are encountered chiefly in interior applications, thus requiring the immediate application of a protective covering or coating on the exposed foam surface. In a confined area, such as a tunnel or flue-shaped structure, foam should not be applied under any condition.

Precautions Against Fire Rising From The Application of Rigid Urethane Foam

Rigid urethane foam is a low-density cellular plastic with excellent insulating properties whether it is applied as boardstock, foamed-in-place, frothed or sprayed. However, it is a combustible like other organic materials such as wood, cork or other organic foams. If suitable precautions are taken (detailed below), this hazard can be substantially reduced.

Fire rating. Fire retardant rigid urethane foams are often classified by tests intended to simulate exposure of the foam to controlled sources of heat and flame. There is no test designed to simulate actual fire conditions at the present time; all testing results must therefore be considered comparative for simulation under low heat and flame conditions only.

Precautions during application:

A. Do not apply rigid urethane foam to interior walls of any confined, narrow, or flue-like structure.
B. Do not apply rigid urethane foam to interior walls and ceilings of rooms or other enclosures without promptly covering the exposed foam with a suitable fire-resistant covering.
C. Avoid welding or other operation involving naked flames or high temperature until the foam is suitably protected. Also, before the foam is protected, flames or high temperature must not penetrate the foam area from the outside, e.g., by welding or cutting behind the insulation.
D. Dust arising from sanding or buffing operations, in common with other dust, constitutes a fire hazard.
E. Avoid the storage of flammable solvents or solvent-containing liquids such as adhesives or paints, flammable gases, and flammable solids such as paper, wood, plastic foams, etc., in the immediate area of the insulation.

Protective covering on exposed foam. Coverings or coatings used to protect rigid urethane foam should be selected for their thermal protection of the foam proportionate to the space occupancy fire hazards.

Emulsion paints or mastics can be formulated to control surface flames where low-order flame ignition takes place. In large fire situations, surface coatings may not be adequate protection.

When combustible materials in a confined interior space ignite and radiate substantial heat through the coating to the foam, it is possible for the foam to ignite even though flames have not penetrated the coating. Accordingly, plaster or gypsum wallboard can be a more effective deterrent against autoignition of the foam than emulsion paints or other liquid coatings.

Employee Safety Procedures

The training of employees is probably the most important safety measure a company can take. Although a company may provide protective equipment and expend a great effort to make sure that each process or operation is designed with safety in mind, an improperly trained worker can create an undue hazard. An effective employee education should include the following items:

A. The operator should be thoroughly familiar with the process with which he is concerned as well as the hazards that exist.
B. He should be instructed in proper handling procedures for the chemicals involved.
C. He should know exactly what action to take if fire, spills or other similar occurrences take place.
D. He should be trained in the proper use of fire fighting first aid, and rescue equipment. It is important that he know the exact locations of these items as well as the location of safety showers, eye baths, drinking fountains, fire alarms, and emergency shut-down switches.
E. He should know when personal protective equipment is to be used and how to use it effectively. It should be the responsibility of supervision to train each worker and, equally important, to instill an attitude of safety. The supervisor must procure the necessary safety equipment and make sure that it is maintained in good working order at all times. Operating procedures, including safety rules, should be posted in working areas where they may be read by employees.

Smoking

Smoking should not be permitted in areas around or adjacent to foam operations. Pyrolysis products (see overleaf) may be formed which are irritating to the lungs.

Personal Protective Equipment

Personal protective equipment should include safety glasses and respirator protective equipment. Respiratory protection is provided by self-contained breathing apparatus, or positive pressure air-masks or hoods.

Fire Fighting

Liquid Vultafoam® components do not constitute a fire hazard due to high flash points. However, they will burn if exposed to sufficient heat and oxygen. The low density foam produced from Vultafoam® components is flammable under certain conditions (see foregoing discussion). In any case it is important that proper fire fighting equipment be available in case of emergency. A water spray is effective for extinguishing fires covering large areas. Automatic sprinkler systems may be helpful in certain applications. Carbon dioxide or dry chemical extinguishers also are effective for small fires. The smoke and fumes resulting from a cellular plastic fire are given off in much larger volume in comparison to ordinary combustibles such as wood or paper, and may block vision or escape routes. Fire-fighters should wear self-contained breathing apparatus and normal protective equipment.

Handling and Storage

Vultafoam® Components are not classified as flammable or explosive chemicals. Shipments of materials are made according to current regulations of the Interstate Commerce Commission and the Department of Transportation. Vultafoam® is shipped in tank cars, tank trucks, and, most commonly, in 55-gallon steel, bung-head, non-returnable drums. Vultafroth® shipments are made in pressurized cylinders, predominately 1000-gallon capacity.

Vultafoam® liquids should be transferred from the drum by mechanical pumps because of the potential for drum rupture if air or nitrogen pressure is used. Careless handling could cause exposure of individuals to hazardous residues unless all the precautions for the original contents are observed. Exposure of these 'empties' to cutting or welding torches or to other spark or heat source could cause fire, violent explosion, or the release of toxic vapors.

We recommend that your personnel and all other recipients of used drums be warned that emptied containers retain product residue and vapors, that there may be danger inherent in their misuse or reuse, and that the disposition of such containers through channels other than a qualified drum reconditioner could be dangerous. We also recommend that your personnel be given the following specific warning: "Do not cut or weld on or near full or emptied drums." All safety precautions should be observed until the container has been cleaned, reconditioned or destroyed.

Spills

Spills of urethane components can be covered with an absorbent material such as sawdust, saturated with a solution of ammonia and isopropanol to react with the isocyanate. Treatment of spills in this manner must be accompanied by recommendations presented before, such as avoiding skin contact, eye protection and respiratory protection.

It is recommended that the container of the treated sawdust be kept near any area where liquid transfer may be made. Self-contained breathing apparatus should also be available, and ventilation is an essential for areas where spills are likely to occur.

Employee Safety Procedures

The training of employees is probably the most important safety measure a company can take. Although a company may provide protective equipment and expend a great effort to make sure that each process or operation is designed with safety in mind, an improperly trained worker can create an undue hazard. An effective employee education should include the following items:

A. The operator should be thoroughly familiar with the process with which he is concerned as well as the hazards that exist.
B. He should be instructed in proper handling procedures for the chemicals involved.
C. He should know exactly what action to take if fire, spills or other similar occurrences take place.
D. He should be trained in the proper use of fire fighting first aid, and rescue equipment. It is important that he know the exact locations of these items as well as the location of safety showers, eye baths, drinking fountains, fire alarms, and emergency shut-down switches.
E. He should know when personal protective equipment is to be used and how to use it effectively. It should be the responsibility of supervision to train each worker and, equally important, to instill an attitude of safety. The supervisor must procure the necessary safety equipment and make sure that it is maintained in good working order at all times. Operating procedures, including safety rules, should be posted in working areas where they may be read by employees.

Smoking

Smoking should not be permitted in areas around or adjacent to foam operations. Pyrolysis products (see overleaf) may be formed which are irritating to the lungs.

Personal Protective Equipment

Personal protective equipment should include safety glasses and respirator protective equipment. Respiratory protection is provided by self-contained breathing apparatus, or positive pressure air-masks or hoods.

Fire Fighting

Liquid Vultafoam® components do not constitute a fire hazard due to high flash points. However, they will burn if exposed to sufficient heat and oxygen. The low density foam produced from Vultafoam® components is flammable under certain conditions (see foregoing discussion). In any case it is important that proper fire fighting equipment be available in case of emergency. A water spray is effective for extinguishing fires covering large areas. Automatic sprinkler systems may be helpful in certain applications. Carbon dioxide or dry chemical extinguishers also are effective for small fires. The smoke and fumes resulting from a cellular plastic fire are given off in much larger volume in comparison to ordinary combustibles such as wood or paper, and may block vision or escape routes. Fire-fighters should wear self-contained breathing apparatus and normal protective equipment.

Handling and Storage

Vultafoam® Components are not classified as flammable or explosive chemicals. Shipments of materials are made according to current regulations of the Interstate Commerce Commission and the Department of Transportation. Vultafoam® is shipped in tank cars, tank trucks, and, most commonly, in 55-gallon steel, bung-head, non-returnable drums. Vultafroth® shipments are made in pressurized cylinders, predominately 1000-gallon capacity.

Vultafoam® liquids should be transferred from the drum by mechanical pumps because of the potential for drum rupture if air or nitrogen pressure is used. Careless handling could cause exposure of individuals to hazardous residues unless all the precautions for the original contents are observed. Exposure of these 'empties' to cutting or welding torches or to other spark or heat source could cause fire, violent explosion, or the release of toxic vapors.

We recommend that your personnel and all other recipients of used drums be warned that emptied containers retain product residue and vapors, that there may be danger inherent in their misuse or reuse, and that the disposition of such containers through channels other than a qualified drum reconditioner could be dangerous. We also recommend that your personnel be given the following specific warning: "Do not cut or weld on or near full or emptied drums." All safety precautions should be observed until the container has been cleaned, reconditioned or destroyed.

Spills

Spills of urethane components can be covered with an absorbent material such as sawdust, saturated with a solution of ammonia and isopropanol to react with the isocyanate. Treatment of spills in this manner must be accompanied by recommendations presented before, such as avoiding skin contact, eye protection and respiratory protection.

It is recommended that the container of the treated sawdust be kept near any area where liquid transfer may be made. Self-contained breathing apparatus should also be available, and ventilation is an essential for areas where spills are likely to occur.

Over-temperature Protection

Over-temperature protection devices are recommended for any equipment capable of heating urethane components. This protection can prevent loss of materials, and more importantly, can reduce the potential hazard associated with "burning" of the isocyanate component. An audible alarm should be used to make personnel aware of a potential problem; automatic disengagement of heating equipment should also take place. Since most heating is done electrically, a simple breaking of a circuit is usually sufficient. (A circuit breaker of an auto-reset nature must not be used.)

When over-temperature devices are actuated, personnel familiar with the total operation should ascertain the cause of the action before restart. Careful observation of temperature conditions generally will indicate the source of failure.

Over-temperature protection devices can usually be set at 20-30 F above recommended operating temperatures, but in no case to exceed 150 F. If the equipment is to be left unattended for longer periods of time, it is recommended that the over-temperature level be set at 90-100 F, or that the equipment be completely turned off.

Why Over-Temperature Controls Should Be Used

Part A—Isocyanate Containing Component

There is a potential for "fire" in isocyanate containing materials. This "fire" is of a heavy smoke, smouldering nature, seldom accompanied by visible flame, and is characteristically produced by run-away temperature.

Effective control of the "fire" requires temperature reduction. Dry ice and/or water can be used, with the dry ice preferred. Water reacts with the isocyanate and volume expansion (foaming) may occur. Water addition must be done carefully and not in closed containers where excessive pressure (caused by carbon dioxide evolution) might result.

Protection for the fire-fighters is mandatory; the smoke and gases are toxic. Potential products include monomeric isocyanate, phosgene, carbon monoxide, carbon dioxide, and phosphorous compounds. Full air supplied face masks or hoods must be used to prevent inhalation of the gases; eye and skin protection must also be used.

Part B—Resin/Blowing Agent Component

Over-temperature protection for the Part B is necessary to prevent pressure development. No significant "fire" hazard exists, but chemical breakdown has been observed. Pressure developments obviously may result in an explosive rupture of equipment reservoirs or piping lines.

Printed 9/84

General Latex and Chemical Corporation
675 Massachusetts Avenue 617-576-8000
General Latex and Chemical Corporation
High Street, North Billerica, Mass. 01862 617-663-3485
General Latex and Chemical Corporation
P. O. Box 748, Cucamonga, Calif. 91730 714-987-6261
General Latex and Chemical Corporation (Of Ohio)
P. O. Box 498, Ashland, Ohio 44805 419-289-2727
General Latex and Chemical Corporation (Of N. C.)
P. O. Box 5487, Charlotte, N. C. 28206 704-376-3582
General Latex and Chemical Corporation (Of Georgia)
P. O. Box 709, Dalton, Georgia 30720 404-278-3622
General Latex Ltd.
20 Ibsen Place, Candiac, Quebec, Canada 514-659-1903
General Latex and Chemicals (Canada) Ltd.
68 Eastern Avenue, E., Brampton, Ontario, Canada 416-451-5360

Over-temperature Protection

Over-temperature protection devices are recommended for any equipment capable of heating urethane components. This protection can prevent loss of materials, and more importantly, can reduce the potential hazard associated with "burning" of the isocyanate component. An audible alarm should be used to make personnel aware of a potential problem; automatic disengagement of heating equipment should also take place. Since most heating is done electrically, a simple breaking of a circuit is usually sufficient. (A circuit breaker of an auto-reset nature must not be used.)

When over-temperature devices are actuated, personnel familiar with the total operation should ascertain the cause of the action before restart. Careful observation of temperature conditions generally will indicate the source of failure.

Over-temperature protection devices can usually be set at 20-30 F above recommended operating temperatures, but in no case to exceed 150 F. If the equipment is to be left unattended for longer periods of time, it is recommended that the over-temperature level be set at 90-100 F, or that the equipment be completely turned off.

Why Over-Temperature Controls Should Be Used

Part A—Isocyanate Containing Component

There is a potential for "fire" in isocyanate containing materials. This "fire" is of a heavy smoke, smouldering nature, seldom accompanied by visible flame, and is characteristically produced by run-away temperature.

Effective control of the "fire" requires temperature reduction. Dry ice and/or water can be used, with the dry ice preferred. Water reacts with the isocyanate and volume expansion (foaming) may occur. Water addition must be done carefully and not in closed containers where excessive pressure (caused by carbon dioxide evolution) might result.

Protection for the fire-fighters is mandatory; the smoke and gases are toxic. Potential products include monomeric isocyanate, phosgene, carbon monoxide, carbon dioxide, and phosphorous compounds. Full air supplied face masks or hoods must be used to prevent inhalation of the gases; eye and skin protection must also be used.

Part B—Resin/Blowing Agent Component

Over-temperature protection for the Part B is necessary to prevent pressure development. No significant "fire" hazard exists, but chemical breakdown has been observed. Pressure developments obviously may result in an explosive rupture of equipment reservoirs or piping lines.

Printed 9/84

General Latex and Chemical Corporation
675 Massachusetts Avenue 617-576-8000

General Latex and Chemical Corporation
High Street, North Billerica, Mass. 01862 617-663-3485

General Latex and Chemical Corporation
P. O. Box 748, Cucamonga, Calif. 91730 714-987-6261

General Latex and Chemical Corporation (Of Ohio)
P. O. Box 498, Ashland, Ohio 44805 419-289-2727

General Latex and Chemical Corporation (Of N. C.)
P. O. Box 5487, Charlotte, N. C. 28206 704-376-3582

General Latex and Chemical Corporation (Of Georgia)
P. O. Box 709, Dalton, Georgia 30720 404-278-3622

General Latex Ltd.
20 Ibsen Place, Candiac, Quebec, Canada 514-659-1903

General Latex and Chemicals (Canada) Ltd.
68 Eastern Avenue, E., Brampton, Ontario, Canada 416-451-5360